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Paper TRADE JOURNAL

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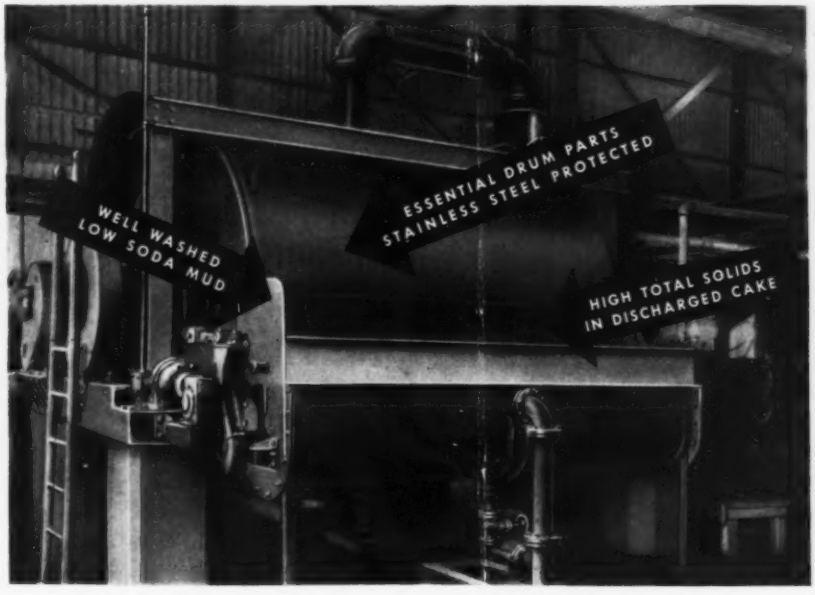
VOLUME 125, No. 4 JULY 24, 1947

LIME MUD FILTERS



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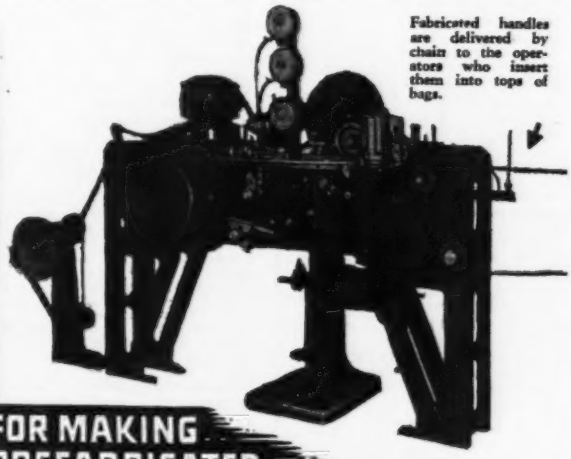

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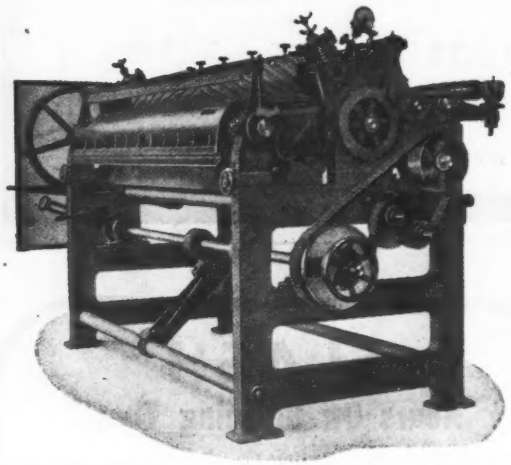

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Williams Apparatus Co.

GASKETS
Raybestos-Manhattan Inc., Manhattan Rubber Division

GEARS
Black-Clawson Company
Downingtown Mfg. Co.
Frank W. Egan & Co.
Farrel-Birmingham Co.
E. D. Jones & Sons Co.
Link Belt Company
Moore & White Co.
D. J. Murray Mfg. Co.
The Sandy Hill Iron & Brass Wks.
Shartle Brothers Machine Co.
Smith & Winchester Mfg. Co.
Valley Iron Works Co.
Waldron Corp., John
Westinghouse Electric Corporation

GRINDERS
Carthage Machine Co.
Farrel-Birmingham Co.
Gibbs-Brower Company, Inc.
Lobdell Co.
Norton Company
Samuel C. Rogers and Company
The Sandy Hill Iron & Brass Wks.

GRINDING WHEELS
The Manhattan Rubber Mfg. Div. of Raybestos-Manhattan, Inc
Norton Company
United States Rubber Co.

GUIDES, WEB
Bound Brook Engrg. Co.

HEADS
Lukens Steel Company

HEAT EXCHANGERS
Foster Wheeler Corp.
Stickle Steam Specialties Co.
Westinghouse Electric Corporation

HEAT RECOVERY SYSTEMS
Foster Wheeler Corp.
Stickle Steam Specialties Co.

HEATING, VENTILATING AND AIR CONDITIONING
The Appleton Machine Co.
Armstrong Machine Works
Cochrane Corp.
E. D. Jones & Sons Co.
General Electric Co.
Grinnell Company
Leeds & Northrup
D. J. Murray Mfg. Co.
Ross Engineering Corp., J. O.
Stickle Steam Specialties Co.
Valley Iron Works Co.
Westinghouse Electric Corporation

HOISTS
Appleton Machine Co.
Rodney Hunt Machine Co.
Ingersoll-Rand Co.
E. D. Jones & Sons Co.

TO BUY

HOSE (Air, Water, Suction, etc.)
Raybestos-Manhattan Inc.
Manhattan Rubber Division
United States Rubber Co.

HUMIDITY CONTROL
Harry W. Dietert Company

HYDRAPULPERS
Dilts Machine Works
Shartle Bros. Machine Co.

IMPREGNANTS
American Anode Div.,
The B. F. Goodrich Chem. Co.
L. Sonneborn Sons, Inc.

INDUSTRIAL ARCHITECTS
The McPherson Company

INDUSTRIAL TRACTORS
Towmotor Corp.

INSTRUMENTS, TESTING AND MEASURING
Ames Company, B. C.
The Barbour Stockwell Co.
Bauer Brothers Co.
N. P. Bowsher
The Bristol Company
Cochrane Corp.
The Foxboro Company
General Electric Company
W. & L. E. Gurley
Leeds & Northrup Company
National Technical Laboratories
B. F. Perkins & Son
Taylor Instrument Cos.
Thwing-Albert Instrument Co.
Testing Machines, Inc.
Wallace & Tiernan Instrument Co.
Williams Apparatus Co.
Westinghouse Electric Corporation

JOINTS
Perfecting Service Company

JORDAN FILLINGS
Appleton Machine Co.
Bahr Brothers Mfg. Co.
E. D. Jones & Sons Co.
Shartle Brothers Machine Co
Smith & Winchester Mfg. Co.
Valley Iron Works Co.

KNIVES
Black-Clawson Company
Dilts Machine Works, Inc.
Hamblet Machine Co.
Heppenstall Company
E. D. Jones & Sons Co.
Simonds Saw & Steel Co.
Taylor Stiles & Co.
Valley Iron Works Co.

KNOTTERS
Improved Paper Machy. Corp.

LABORATORY EQUIPMENT
Appleton Machine Co.
Bauer Brothers Co.
The Biggs Boiler Works Co.
Dilts Machine Works
W. & L. E. Gurley
E. D. Jones & Sons Co.
Leeds & Northrup Company
National Technical Laboratories
Taylor Instrument Companies
Testing Machines, Inc.
Thwing-Albert Instrument Co.
Valley Iron Works Co.
Williams Apparatus Co.

LAY BOYS
Gibbs-Brower Company, Inc.
Hamblet Machine Co.
Moore & White Co.

LINTER COTTON
The Railway Supply & Mfg. Co.

LIQUID CHLORINE
Pennsylvania Salt Co.

LITHOPONE
Chemical & Pigment Division.
The Glidden Company

LUBRICANTS
Gulf Oil Corporation
Sinclair Refining Co.
Socony-Vacuum Oil Co., Inc.
L. Sonneborn Sons, Inc.
Sun Oil Company
The Texas Company
Tide Water Associated Oil Co.

MATERIAL HANDLING
Automatic Transportation Co.

MICROMETERS & CALIPERS
Farrel-Birmingham Co.
Montague Machine Co.
Lobdell Co.
Testing Machines, Inc.
Walker-Goulard-Plehn Co.

MIXING BOXES
Cheney Bigelow Wire Works

MOISTURE CONTENT CONTROL
Harry W. Dietert Company
Stickle Steam Specialties Co.
Williams Apparatus Co.

MOTORS AND GENERATORS
Allis-Chalmers Mfg. Co.
De Laval Steam Turbine Co.
General Electric Company
Ingersoll-Rand Co.
Reliance Electric & Engrg. Co.
Thwing-Albert Instrument Co.
Westinghouse Electric Corporation

MOULDS
Cheney Bigelow Wire Works

NOZZLES
Link Belt Company

PACKING BOXES
Johnson Corporation
Shartle Brothers Machine Co.

PACKING
Johns-Manville Sales Corp.
The Manhattan Rubber Mfg. Div.
of Raybestos-Manhattan, Inc.
United States Rubber Co.

PAINTS
L. Sonneborn Sons, Inc.

PAPER MACHINES
Bagley & Sewall Co.
Black-Clawson Company
Downingtown Mfg. Co.
Gibbs-Brower Company, Inc.
Thomas W. Hall Co.
Lukenweld, Inc.
Moore & White Co.
Pusey & Jones Corp.
J. J. Ross Company
Rose Paper Machy. Corp.
The Sandy Hill Iron & Brass Wks
Shartle Brothers Machine Co.
Smith & Winchester Mfg. Co.

PAPER MACHINE SLICES
Black-Clawson Company
E. D. Jones & Sons Co.
The Sandy Hill Iron & Brass Wks
Valley Iron Works Co.

PAPER MILL BUILDERS
The Rust Engrg. Co.

PAPER TUBE MACHINERY
Dietz Machine Works
Gibbs-Brower Company, Inc.
Thomas W. Hall Co.
Hudson Sharp Machine Company
Langston Co., Samuel M.
South Wabash Engrg. Co.

PASTING MACHINES
Black-Clawson Company
Davis, Frank H. Co.
Dilts Machine Wks.
Frank W. Egan & Co.
Gibbs-Brower Company, Inc.
Murray, D. J., Mfg. Co.
Moore & White Co.
Potdevin Machine Co.
Shartle Brothers Machine Co.
South Wabash Engrg. Co.
Waldron Corp., John

PETROLEUM SULFONATES
L. Sonneborn Sons, Inc.

PENSTOCKS, WELDED STEEL
The Biggs Boiler Works Co.

PERMEOMETER
W. & L. E. Gurley

PERFORATED METAL
Allis-Chalmers Mfg. Co.
Harrington & King Perforating Co

pH METER
The Bristol Company
Thwing-Albert Instrument Co.

PIPE
Crane Company
Grinnell Company
Johns-Manville Sales Corp.
Stowe-Woodward, Inc.
Walworth Company

PIPE FITTINGS
Crane Company

PIPING, FABRICATED
Crane Company

PLATERS
Gibbs-Brower Company, Inc.
Perkins & Son, Inc., B. F.

PLATES
J. O. Ross Engrg. Corp.
Lukens Steel Company
Timken Roller Bearing Co.

PLATE WORK (Steel & Alloy)
The Biggs Boiler Works Co.
Lukenweld, Inc.

S & W Model "E" Undercut showing safety levers, controls and illuminated index tape. (Guards removed)

It's NEW Straight thru!

The SMITH & WINCHESTER MODEL "E" UNDERCUT TRIMMER

A NEW Smith & Winchester Undercut Trimmer from the ground up, to meet the exacting requirements of the modern finishing room for high volume production, accurate and safe operation. Work reaching the trimmer is work nearly completed and the cost of spoilage at this point would be prohibitive. The new Smith & Winchester Model "E" Undercut is designed to completely satisfy your needs.

Write for new 4-page descriptive folder.

Custom-built paper mill and bag machines for special requirements.

- Heavy one-piece base frame
- Anti-friction bearings on drive shaft
- Disc type friction clutch
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- Push button control
- Illuminated index tape
- Gears properly guarded

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The SMITH & WINCHESTER Manufacturing Company
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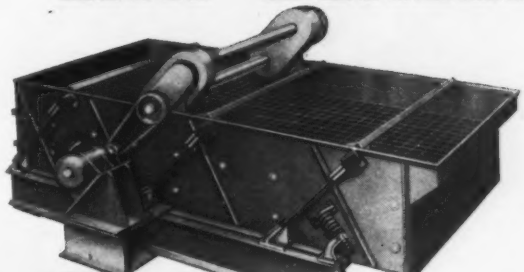
Level Vibrating Double Deck CHIP SCREEN

MURCO TRADE MARK REG. U.S. PAT. OFF.



A HIGH PRODUCTION UNIT!

For efficient separation of uniform chips, the MURCO Level Vibrating Double Deck Chip Screen embodies proper angle of motion to screen deck through vibrating mechanism designed to give a fast straight line flow of chips over the screen, while holding chips on flat wide side eliminating upending of chips and long slivers. A compact unit that requires less space per ton capacity.

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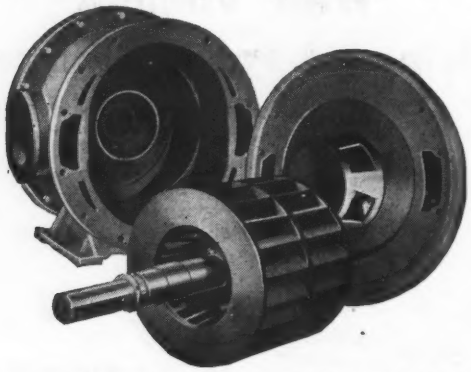

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Operating advantages made possible by the Nash principle, and present in no other type of vacuum pump, permit a new level of operating economy. Nash Vacuum Pumps have but one moving part, a rotor cast in one piece, and revolving without metallic contact. There are no valves, no pistons or sliding vanes, no internal parts requiring wear adjustment or lubrication.

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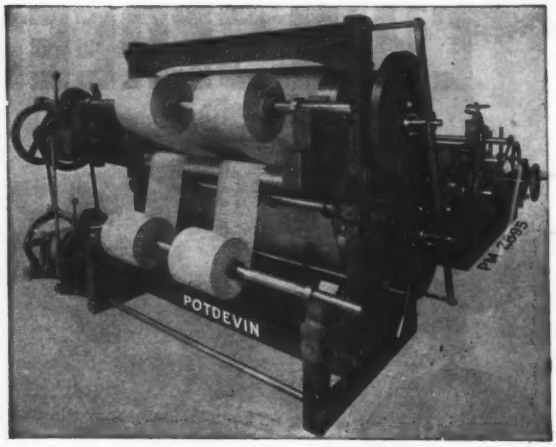
SOUTH NORWALK, CONNECTICUT, U. S. A.

POTDEVIN



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POTDEVIN

WHERE

PLUGS
Black-Clawson Company
E. D. Jones & Sons Co.
The Noble & Wood Machine Co.
Shartle Brothers Machine Co.

POWER TRANSMISSION MACHINERY
Link Belt Company
Westinghouse Electric Corporation

PRECISION SAMPLE CUTTER
Thwing-Albert Instrument Co.

PRESERVATIVES
American Lumber & Treating Co.
E. I. Du Pont de Nemours & Co.
Koppers Company, Inc.

PRESSURE VESSELS, STEEL AND ALLOY
The Biggs Boiler Works Co.
General American Transportation Corp.
Foster Wheeler Corp.

PRESSES
Black-Clawson Company
Dietz Machine Works
Farrel-Birmingham Co.
Gibbs-Brower Company, Inc.
Thomas W. Hall Co.
Hudson-Sharp Machine Co.
Paper Converting Machine Co., Inc.
Potdevin Machine Co.
Shartle Brothers Machine Co.
South Wabash Engrg. Co.
Valley Iron Works Co.
Waldron Corp., John
H. G. Weber & Co., Inc.
Williams Apparatus Co.

PULP CLASSIFIER
Thwing-Albert Instrument Co.

PULP STOCK VALVES
Crane Company
Record Fdy. & Mach. Co.
Shartle Bros. Mach. Co.

PULPERS
Bauer Brothers Co.

PULPS
Andersen Co., J.
Bulkley, Dunton Pulp Co., Inc.
Gottesman & Co., Inc.
Elof Hansson, Inc.
Lyddon & Co., (America) Inc.
Parsons & Whittemore, Inc.
Perkins-Goodwin Co.
Price & Pierce, Ltd.
Pulp and Paper Trading Co.

PULPSTONES
Norton Company

PUMPS
Allis-Chalmers Mfg. Co.
Black-Clawson Company
Buffalo Pumps, Inc.
Dorr Company
Downingtown Mfg. Co.
De Laval Steam Turbine Co.
Gibbs-Brower Company, Inc.
Goulds Pumps Inc.
Ingersoll-Rand Co.
Johnson Corp.
Milton Roy Pumps
Moore & White Co.
Morris Machine Works
Nash Engineering Co.
Noble & Wood Machine Co.
Oliver United Filters, Inc.
Paper Converting Mch. Co.
J. J. Ross Company
Ross Paper Machy. Corp.
The Sandy Hill Iron & Brass Wks.
Shartle Brothers Machine Co.
Smith & Winchester Mfg. Co.
Warren Steam Pump Company

PYROMETERS, PAPER ROLL
Thwing-Albert Instrument Co.

RAG COOKING PROCESSES
The Kinsley Chemical Company

RAG CUTTERS
Gibbs-Brower Company, Inc.
B. F. Perkins & Son, Inc.
Taylor-Stiles & Co.

RECAUSTICIZING PLANTS
General American Transportation Corp.

RECOVERY SYSTEMS
Bulkley, Dunton Pulp Co., Inc.
Rodney Hunt Machine Co.
Moore & White Co.
D. J. Murray Mfg. Co.
Pusey & Jones Corp.
Ross Engineering Corp., J. O.
Valley Iron Works Co.

REDUCERS
Link Belt Company

REELS
Black-Clawson Company
Downingtown Mfg. Co.
De Laval Steam Turbine Co.
Hudson Sharp Machine Company
The Kohler System Company
Moore & White Co.
Paper Converting Mch. Co.
Rodney Hunt Machine Co.
The Sandy Hill Iron & Brass Wks.
Shartle Brothers Machine Co.
The Smith & Winchester Mfg. Co.

REFINERS
Appleton Machine Co.
Bahr Brothers Mfg. Co.
Bauer Brothers Co.
Dilts Machine Works
Gibbs-Brower Company, Inc.
The Hermann Manufacturing Co.
E. D. Jones & Sons Co.
Morden Machines Co.
Murray, D. J., Mfg. Co.
Noble & Wood Machine Co.
Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.
Sprout, Waldron & Co.
Sutherland Refiner Corp.
Valley Iron Works

REGULATORS
Allis-Chalmers Mfg. Co.
Armstrong Machine Works
Bird Machine Company
The Bristol Company
Cochrane Corp.
The Foxboro Company
Jones, E. D., & Sons Co.
General Electric Co.
Johnson Corp.
Leeds & Northrup Company
National Technical Laboratories
Noble & Wood Machine Co.
Shartle Brothers
Stickle Steam Specialties Co.
Taylor Instrument Companies
Trimbey Mach. Wks.
Wallace & Tiernan
Westinghouse Electric Corporation

RESINS
Amer. Cyanamid & Chemical Corp.
Amer. Resinous Chemicals Corp.
Casein Co. of America, Division of The Borden Co.
The Dow Chemical Company
Hercules Powder Co., Inc.
Monsanto Chemical Co.
The Resinous Prod. & Chem. Co.

ROLLS
Appleton Machine Co.
Black-Clawson Company
H. W. Butterworth & Sons Co.
Downingtown Mfg. Co.
Frank W. Egan & Co.
Farrel-Birmingham Co.
Gibbs-Brower Company, Inc.
Improved Paper Machy. Corp.
Lobdell Co.
Lukenweld, Inc.
D. J. Murray Mfg. Co.
Noble & Wood Machine Co.
Perkins, B. F., & Sons Co.
Pusey & Jones Corp.
Raybestos-Manhattan, Inc. Manhattan Rubber Division
Roehlen Engraving Works
J. J. Ross Company
Ross Paper Machy. Co.
Rodney Hunt Machine Co.
The Sandy Hill Iron & Brass Wks.
Shartle Brothers Machine Co.
Smith & Winchester Mfg. Co.
Stowe-Woodward, Inc.
United States Rubber Co.
Valley Iron Works Co.
Waldron Corp., John

ROLL COVERS
Cincinnati Rubber Mfg. Co.
Raybestos-Manhattan Inc., Manhattan Rubber Division
Stowe-Woodward, Inc.

ROLL STANDS
Cameron Machine Co.
Frank W. Egan & Co.
The Kohler System Company
Moore & White Co.
Potdevin Machine Co.
South Wabash Engrg. Co.
H. G. Weber & Co., Inc.

ROOFING MATERIALS
Johns-Manville Sales Corp.
L. Sonneborn Sons, Inc.

ROTARY BOILERS
Biggs Boiler Works

RUBBER PRODUCTS
Raybestos-Manhattan Inc., Manhattan Rubber Division
Stowe-Woodward, Inc.

TO BUY

RULE, STEEL CUTTING
Simonds Saw & Steel Co.
SATURANTS
American Anode Div., The B. F. Goodrich Chem. Co.
SATURATING MACHINES
Black-Clawson Company
Frank W. Egan & Co.
Gibbs-Brower Company, Inc
Moore & White Co.
Noble & Wood Machine Co.
Potdevin Machine Co.
Shartle Brothers Machine Co.
Waldron Corp., John
Weber, Herman G.
SAVEALLS
Bulkley, Dunton Pulp Co., Inc.
Gibbs-Brower Company, Inc.
Improved Paper Machy. Corp.
Oliver United Filters, Inc.
SAWS
Simonds Saw & Steel Co.
SAW SLASHERS
Ryther & Pringle Co., Inc.
SCALES
Merrick Scale Mfg. Co.
Testing Machines, Inc.
Thwing-Albert Instrument Co.
SCALES, BASIS WEIGHT
Thwing-Albert Instrument Co.
SCREEN PLATES
Fitchburg Screen Plate Co.
Magnus Metal Corp.
Morey Paper Mill Supply Co.
Testing Machines, Inc.
Union Machine Co.
Union Screen Plate Co.
SCREENS
Allis-Chalmers Mfg. Co.
Appleton Wire Works
Appleton Machine Company
Bird Machine Company
Carthage Machine Co.
Dilts Machine Works, Inc.
Downingtown Mfg. Co.
Gibbs-Brower Company, Inc.
Harrington & King Perforating Co.
Hendrick Manufacturing Co.
Improved Paper Machy. Corp.
E. D. Jones & Sons Co.
Link Belt Company
Moore & White Co.
D. J. Murray Mfg. Co.
J. J. Ross Company
Ross Paper Machy. Co.
The Sandy Hill Iron & Brass Wks.
Shartle Brothers Machine Co.
Trimbey Mach. Wks.
Valley Iron Works Co.
SHEET MACHINES
Gibbs-Brower Company, Inc.
Thomas W. Hall Co.
The Hermann Manufacturing Co.
Noble & Wood Machine Co.
Valley Iron Works Co.
Williams Apparatus Co.
SHOWER PIPES
Bird Machine Company
A. E. Broughton & Co.
Downingtown Mfg. Co.
Improved Paper Machy. Corp.
Moore & White Co.
Sandusky Fdy. & Mch. Co.
Shartle Bros. Mach. Co.
Smith & Winchester Mfg. Co.
SHREDDERS
Bauer Brothers Co.
Carthage Machine Co.
Gibbs-Brower Company, Inc.
SIZING
Amer. Resinous Chemicals Corp.
Black-Clawson Company
The Dow Chemical Company
du Pont, E. I., de Nemours & Co.
Monsanto Chemical Co.
National Oil Products Co.
Paper Makers Chemical Department, Hercules Powder Co.
Philadelphia Quartz Co.
Socony-Vacuum Co.
SIZING TESTER
W. & L. E. Gurley
Thwing-Albert Instrument Co.
SLIME CONTROL
Buckman Laboratories Inc.
The Dow Chemical Company
E. I. Du Pont de Nemours & Co.
Falls Chemical Products Co.
Mallinckrodt Chemical Wks.
SLITTERS
Theo. Adams
Black-Clawson Company
Cameron Machine Co.
Carthage Machine Co.
Dietz Machine Works
Downingtown Mfg. Co.
Frank W. Egan & Co.
Gardner Pattern & Model Works.
Gibbs-Brower Company, Inc.
Thomas W. Hall Co., Inc.
Hamblet Machine Co.
Hudson Sharp Machine Company
Langston Co., Samuel M.
Moore & White Co.
D. J. Murray Mfg. Co.
Potdevin Machine Co.
J. J. Ross Company
Ross Paper Machy. Co.
The Sandy Hill Iron & Brass Wks
Smith & Winchester Mfg. Co
South Wabash Engrg. Co.
Valley Iron Works Co.
Waldron Corp., John
SMOKE STACKS
The Biggs Boiler Works Co
SOFTNESS-STIFFNESS TESTER
W. & L. E. Gurley
Thwing-Albert Instrument Co.
SOLUBLE OILS
Adell Chemical Company
L. Sonneborn Sons, Inc.
SOLVENTS
Adell Chemical Company
SPECIAL KNIVES
Simonds Saw & Steel Co.
STAINLESS STEEL
Ingersoll Steel Div., Borg-Warner Corp.
U. S. Steel Corp.
STARCH
Amer. Cyanamid & Chemical Corp.
A. M. Meincke & Son Inc.
Clinton Industries, Inc.
STEAM SPECIALTIES
Babcock & Wilcox Co.
Cochrane Corp.
Johnson Corp.
Perfecting Service Company
Shartle Bros. Mch. Co.
Stickle Steam Specialties Co.
STEEL
American Rolling Mill Co.
Carnegie Illinois Steel Co.
Ingersoll Steel Div., Borg-Warner Corp.
Lukens Steel Company
U. S. Steel Corp.
D. J. Murray Mfg. Co.
Noble & Wood Machine Co.
The Sandy Hill Iron & Brass Wks
STEEL, CLAD
Lukens Steel Company
STEEL PLATE SHAPES AND TREADS
By-Products Steel Corp.
STEEL TANKS
The Biggs Boiler Wks. Co.
STRAPPING & STRAPPING MACHINES
The Stanley Works
STUFF CHESTS
Downingtown Mfg. Co.
E. D. Jones & Sons Co.
Moore & White Co.
Shartle Brothers Machine Co
Valley Iron Works Co.
SUCTION BOXES
Black-Clawson Company
A. E. Broughton & Co.
Downingtown Mfg. Co.
E. D. Jones & Sons Co.
Moore & White Co.
The Sandy Hill Iron & Brass Wks
Shartle Brothers Machine Co.
SULPHUR
American Cyanamid Corp.
Texas Gulf Sulphur Co.
Witco Chemical Company
SULPHUR BURNERS
Valley Iron Works Co.
SULPHUR DIOXIDE
Ansul Chemical Company
SUPERCALENDERS
B. F. Perkins & Son, Inc.
SYNTHETIC LATICES
American Anode Div., The B. F. Goodrich Chem. Co
TACHOMETERS
The Barbour Stockwell Co.
TALC
Amer. Cyanamid & Chemical Corp
W. H. Loomis Talc Corp.
TANK CARS
General American Transportation Corp.
TANK RELINING STEEL
Ingersoll Steel Div., Borg-Warner Corp.

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TANKS
The Biggs Boiler Works
Cochrane Corp.
General American Transportation Corp.
E. D. Jones & Sons Co.
Kalamazoo Tank & Silo Co.
The Noble & Wood Machine Co.
Raybestos-Manhattan Inc., Manhattan Rubber Division
Rodney Hunt
J. F. Perkins & Son, Inc.
Testing Machines, Inc.
J. O. Ross Engrg. Corp.
Shartle Brothers Machine Co.
Stowe-Woodward, Inc.
United States Rubber Co.
Waldron Corp., John

TEARING TESTERS
Thwing-Albert Instrument Co.

TENSILE TESTERS
Testing Machines, Inc.
Thwing-Albert Instrument Co.

THICKENERS, DECKERS AND SAVEALLS
Bird Machine Company
Bulkley, Dunton Pulp Co., Inc.
Carthage Machine Co.
Cheney Bigelow Wire Works
Dilts Machine Works
Dorr Co.
Downingtown Mfg. Co.
General American Transportation Corp.
Moore & White Co.
D. J. Murray Mfg. Co.
Oliver United Filters, Inc.
J. J. Ross Company
Ross Paper Machy. Co.
The Sandy Hill Iron & Brass Wks.
Shartle Brothers Machine Co.
Valley Iron Works Co.

TITANIUM
E. I. du Pont de Nemours & Co. Chemical & Pigment Division.
The Glidden Company
Titanium Pigment Co.
R. T. Vanderbilt Co.
Witco Chemical Company

TOOL BITS
Simonds Saw & Steel Co.

TOOLS
Ingersoll-Rand Co.
The Stanley Works
Walworth Company

TRACTORS
Towmotor Corp.

TRANSMISSIONS
Link Belt Company

TRUCKS
Automatic Transportation Co.
Towmotor Corp.

TRAPS
Armstrong Machine Works
Cochrane Corp.
Crane Co.
Grinnell Company
Johnson Corporation
Shartle Bros. Mch. Co.
Stickle Steam Specialties Co

TUBS
Rodney Hunt Machine Co.
Noble & Wood Machine Co.
Shartle Brothers
Valley Iron Works Co.

TURBINES
Allis-Chalmers Mfg. Co.
De Laval Steam Turbine Co.
General Electric Company
Hunt, Rodney, Mach. Co.
Westinghouse Electric Corporation

TURPENTINE RECOVERY
Foster Wheeler Corp.

USED EQUIPMENT
Frank H. Davis Company
Gibbs-Brower Co.
Thomas W. Hall Co.
Noble & Wood Machine Co.
J. J. Ross Company
Ross Paper Machy. Co.
Shartle Brothers Machine Co.

VACUUM FILTERS
Improved Paper Machy. Corp.
Oliver United Filters

VALVES
The Bristol Company
Cochrane Corp.
Crane Company
Dilts Machine Works
The Foxboro Company
E. D. Jones & Sons Co.
Magnus Metal Corp.
D. J. Murray Mfg. Co.
Noble & Wood Machine Co.
William Powell Co.
Record Fdy. & Mch. Co.
The Sandy Hill Iron & Brass Wks.
Shartle Brothers Machine Co.
Stickle Steam Specialties Co.
Taylor Instrument Companies
Trimbey Mach. Wks.
Valley Iron Works Co.
Walworth Company

VALVES, PULP STOCK
Crane Company
Shartle Brothers Mch. Co.

VAPOR TRANSMISSION TESTER
Thwing-Albert Instrument Co.

VATS & VAT PARTS
Union Machine Co.
Union Screen Plate Co.

WASHERS
Bird Machine Company
Downingtown Mfg. Co.
Gibbs-Brower Company, Inc
Improved Paper Machy. Corp.
E. D. Jones & Sons Co.
Moore & White Co.
Noble & Wood Machine Co.
Oliver United Filters
The Sandy Hill Iron & Brass Wks.
Rodney Hunt Machine Co.
Shartle Brothers Machine Co.
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Dilts Machine Works
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Shartle Brothers Machine Co.
Waldron Corp., John
Weber, Herman G.

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Pusey & Jones Company
J. J. Ross Company
Ross Paper Machy. Co.
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Shartle Brothers Machine Co.
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Frank W. Egan & Co.
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Gibbs-Brower Company, Inc.
Thomas W. Hall Co.
Hudson-Sharp Mach. Co.
Langston Co., Samuel M.
The Kohler System Company
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Potdevin Machine Co.
Pusey & Jones Corp.
J. J. Ross Company
Ross Paper Machy. Co.
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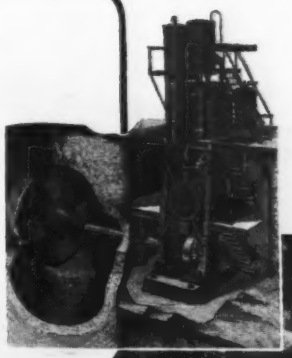

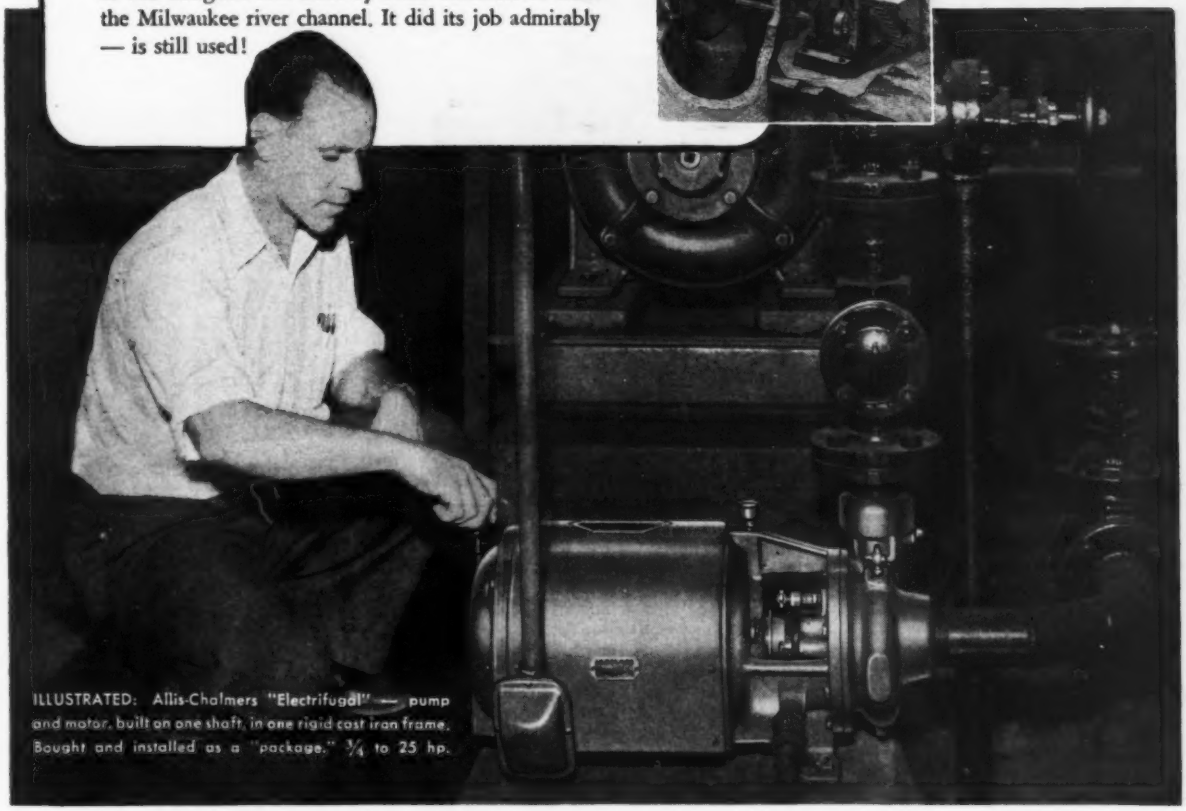

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1847 1947 A CENTURY OF SERVICE to Industry THAT MADE America Great

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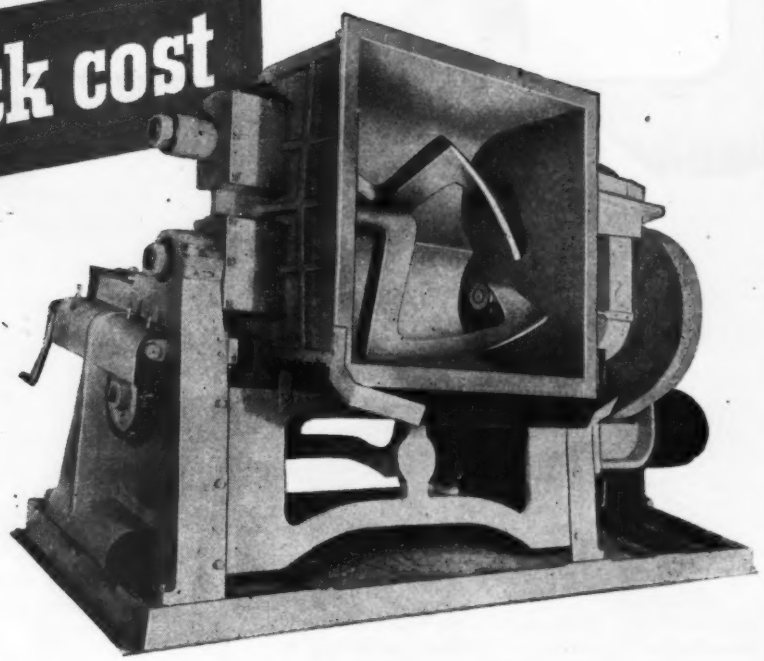

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LUKENS

Nickel-Clad Stainless-Clad
Inconel-Clad Monel-Clad
STEELS

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SOLID METAL ADVANTAGES WITH CLAD STEEL ECONOMY

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CALENDAR OF COMING EVENTS

August 25, 1947—National Paper Trade Association of the U. S., Inc., Midwest Regional Meeting, Hotel Sherman, Chicago.

September 3-6, 1947—TAPPI Fundamental Research Meeting, Appleton, Wis.

September 24-27, 1947—TAPPI Acid Pulping Meeting, Minneapolis, Minn.

October 9-11, 1947—TAPPI Alkaline Pulping and Chemical Products Meeting, Asheville, N. C.

October 27-29, 1947—The National Paper Trade Association of the U. S., Inc., Semi-annual Convention, Hotel Sherman, Chicago.

November 3-5, 1947—TAPPI Second Engineering Conference, Philadelphia, Pa.

May 18-20, 1948—American Pulp and Paper Mill Superintendents Association, Annual Meeting, Roosevelt Hotel, New Orleans, La.

At Dalton, Massachusetts, in 1801, Zenas Crane appeals to patriotism for support of his new industry.

For Flag, for Country and for Paper!

After the Revolution, America's paper industry was desperately eager to expand. But paper was made from old linen and linen was scarce.

When, in 1801, Zenas Crane was about to set up a paper mill at Dalton, Massachusetts, he sought help by issuing this appeal to patriotism: "Every woman who has the good of her country and the interest of her family at heart will save their rags and send them to the manufactory, or to the nearest storekeeper—for which the subscribers will pay a generous price."

Today, the finest writing and ledger papers are still made from rag stock. But after 1860, the new wood pulp processes opened up the vast resources of the forests, made lower grades of paper plentiful for printing and packaging, sped the growth of the paper industry, made paper the product most used by man.

The dramatic story of paper is told in the sound-and-color film, "Paper — Pacemaker of Progress," and in a book under the same title. Both are presented by F. C. Huyck & Sons as a tribute to the Paper Industry. The book will be sent free upon request

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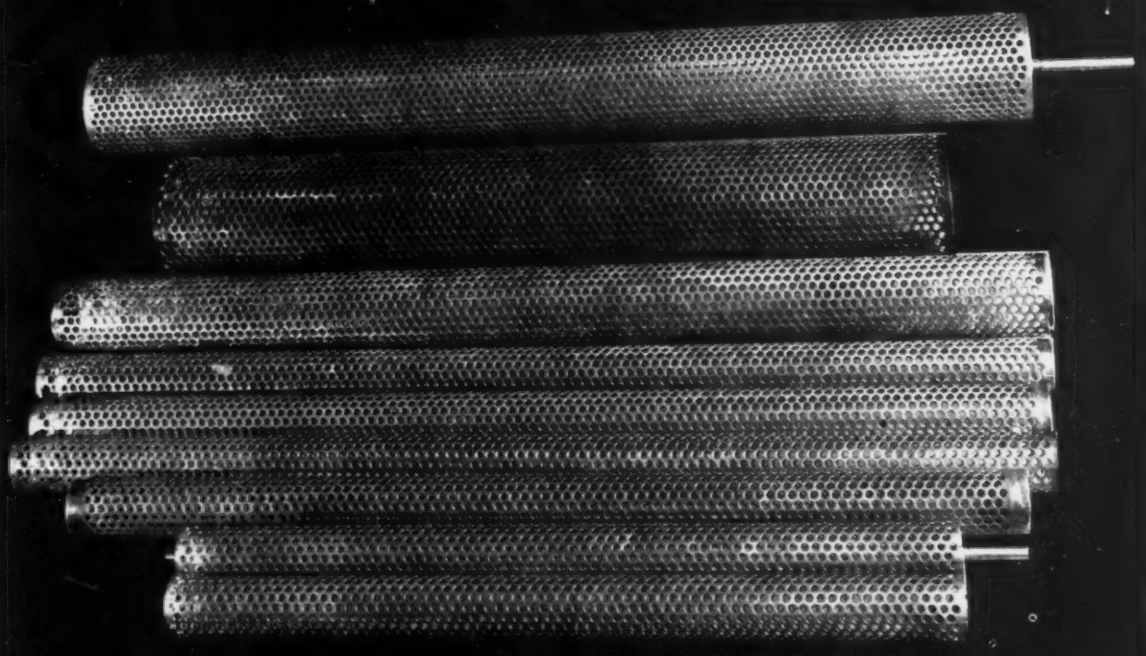
SO . . . Whether it's a distributing roll problem or simply a replacement distributing roll, think first of Valley!



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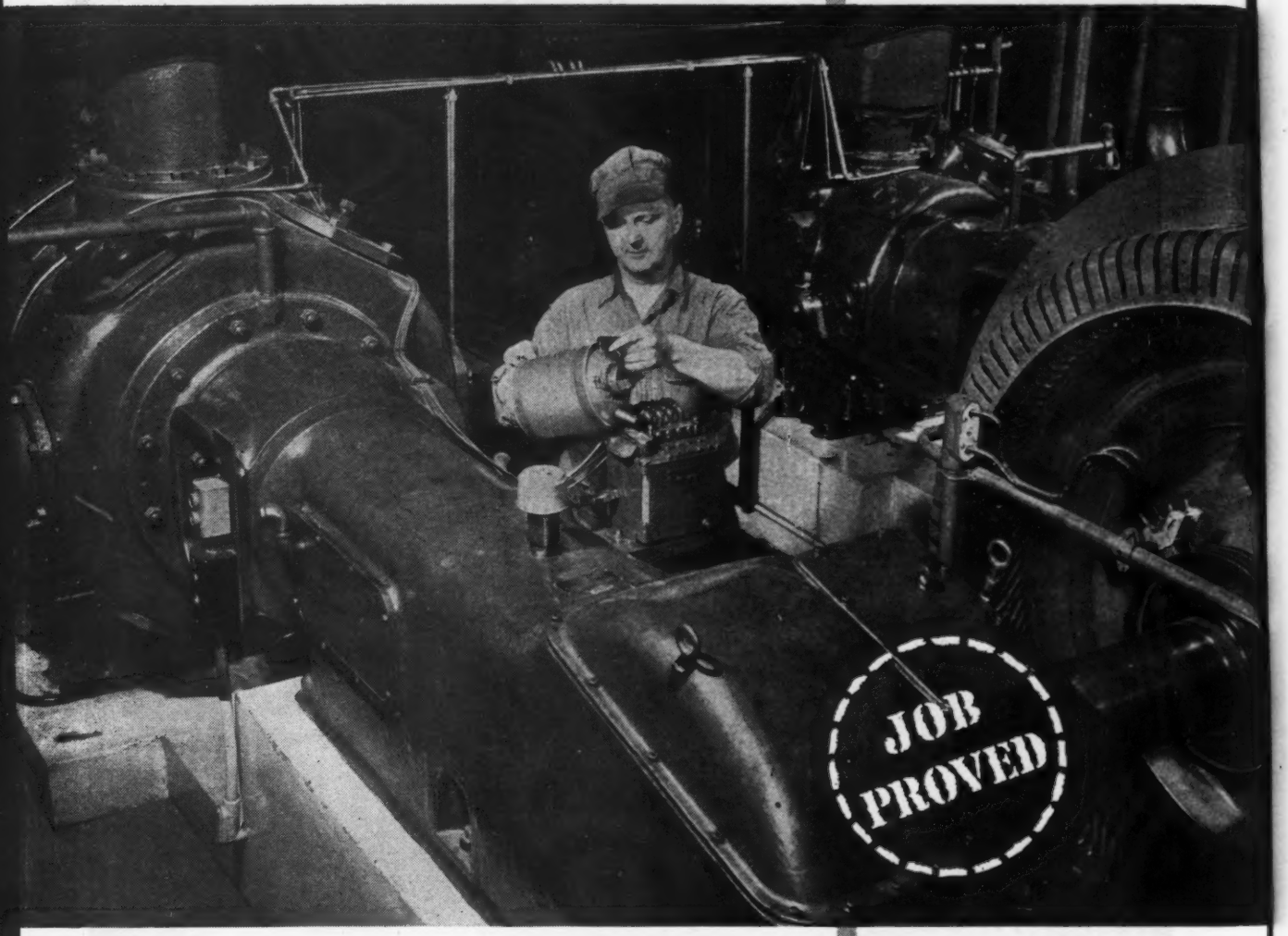

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Records of this sort are being made every day by "Job Proved" Sun products in dozens of paper mills. For lubricants that will give you maximum assurance of steady night-and-day operation, call your nearest Sun office or write Department PT7.

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Paper TRADE JOURNAL
REG. U. S. PAT. OFF.
VOL. 125, NO. 4 JULY 24, 1947

Worthen Brawn Dies On Queen Elizabeth

NEW YORK — Worthen E. Brawn, general superintendent of the Pejepscot Paper Company, and president of the Technical Association of the Pulp and Paper Industry, died suddenly of a heart ailment on the *Queen Elizabeth* shortly after it left New York City on Thursday, July 17th. He was enroute to Great Britain, Sweden, Finland and Denmark. Mr. Brawn was accompanied by his wife and had spent some time with his daughter Beverly at Pearl River, N. Y., just before his departure.

Mr. Brawn was born in Bath, Maine, on November 6, 1893, and was graduated as an engineer from the University of Maine in 1917. His professional career in the pulp and paper industry began after his graduation, with the Lake Superior Paper Company, later the Spanish River Pulp and Paper Company (now the Abitibi Power and Paper Company, Ltd. at Sault Ste. Marie and Sturgeon Falls, Ont.). His work was largely in the field of technical research.

Later he was with the Newton Falls Paper Company, Newton Falls, N. Y., and joined the Pejepscot Paper Company in 1920. He remained with this company until his death. Immediately prior to the purchase of this company by the Hearst organization he had been vice-president of the company and was general superintendent of the company under the Hearst administration.

He is survived by Mrs. Brawn and his daughter Beverly (Mrs. Waller).

Mr. Brawn represented the aims and ideals of the Technical Association of the Pulp and Paper Industry. He entered into its activities with the same high enthusiasm and native common sense that characterized his efforts in all of his fields of interest.

Over the years he accepted many important assignments in the Association's affairs and in February 1947 was elected to the presidency of the Association. In this position he embarked upon a long program of productive leadership. He will be long remembered by the Pacific and Chicago Sections of the Association because of his active presence at major meetings of these groups this year. It was his intention to visit all sections during his term of office.

He organized the Maine-New Hampshire Section and was its first chairman. His anticipation of his European

(Continued on page 22)

Kimberly Clark Will Operate Coosa River $30 Million Mill

COLA G. PARKER
Visits South, Signs Contract.

BIRMINGHAM, Ala. — The Coosa River Newsprint Company last week made known additional details of the size and operation of a $30 million mill to manufacture newsprint at Childersburg, Ala. According to a check-up by the Associated Press representative here, Kimberly-Clark Corporation, of Neenah, Wis., and the owners have agreed on the basis for the Wisconsin paper firm to build and manage the plant.

Cola G. Parker, Kimberly-Clark president, and Ernst Mahler, executive vice-president, were in Birmingham, Ala., last week to negotiate the final contract between the two companies.

"The mill will have 100,000 tons annual capacity and will be rated at 350 tons daily, plus 200 tons of bleached sulphate," it was said.

Edward L. Norton, president of Coosa River Newsprint Company, said Kimberly-Clark is expected to assume full responsibility for design and construction, and for subsequent operation, including production and sales. The management firm also will be represented on the Coosa board of directors, and will have headquarters in Birmingham.

He expressed Coosa River's confidence that the arrangement would guarantee long-term continuity of operation.

"Kimberly-Clark has been an outstanding pioneer in these fields, manufacturing-wise and in associated community development that helps to assure successful future progress," Mr. Norton said. "We will have access to that background and to its present-day facilities which include the most comprehensive engineering research, and woodland divisions in the industry."

"Plans for construction of a mill at Childersburg, to manufacture newsprint from Alabama wood-pulp, have been under way for more than a year," it was said. "The Coosa River Newsprint Company was incorporated in March, 1946, and recently purchased 615 acres of the reservation of the old Alabama Ordnance Works.

"In addition to the site, the company has leases for 40 years on additional facilities on the reservation. The

(Continued on page 18)

Midwest Waste Inventories Rise On Heavy Receipts

CHICAGO—Receipt's of waste paper remained heavy according to mills in this vicinity. This condition prevailed despite a price cut of $4 a ton for No. 1 news which became effective July 11. The oversupply resulted from increased offerings and from the fact that several mills still are closed down for vacation periods. The local trade looks for a firming up when all mills are back in operation. Mill quotations held steady at $16 a ton for No. 1 news, $12 for No. 1 mixed and $30 for No. 1 old corrugated, according to local news outlets.

B-F-D Starts Chipper Building

OGDENSBURG, N. Y. — A building to house a newly-obtained wood chipper will be constructed at the plant of Berts-Forster-Dixfield Company in Ogdensburg, according to Donald A. Hunter, superintendent of the Ogdensburg division. Other construction will be done along the plant's waterfront area.

Sutherland Paper Plans To Add Board Mill

KALAMAZOO—The Sutherland Paper Company plans construction of a new $2.5 million paperboard mill to add to its manufacturing facilities on the north side of the city. The project will be a continuation of the company's broad expansion program started less than two years ago which with new units and additions now nearing completion, will total nearly $4 million in new construction.

Construction of the new paperboard mill will depend largely upon the building situation and the availability of machines and other equipment, according to William Race, president of the Sutherland Paper Company. He said that under present plans the unit is scheduled to be completed by the end of 1948.

The Miller-Davis Company has been awarded the construction contract. Orders already have been placed for the machines and other equipment to be installed.

The first phase of the construction work is scheduled to begin this fall. It is hoped to have the basic concrete work completed before winter sets in.

The new board mill will be located just north of the company's specialty division. It will front on the east side of Pitcher street and will extend to the C. K. & S. tracks. The northern boundary will be at the Kalamazoo Stove and Furnace Company No. 2 plant property. The site at present is used as a parking lot for employes.

The unit will be of steel, concrete, and glass construction in conformity with the architectural style of other buildings built at the plant in recent years.

The new building will be the equivalent of two stories in height and will add 190,000 square feet of floor space to the company's manufacturing facilities.

It will be large enough to house two paper machines, with present plans calling for the purchase of one new paper machine for installation. Long range plans anticipate utilization of the balance of the space in the relocation and modernization of present paper making machinery at the plant. Included will be a warehouse and storage building at the C. K. & S. railroad siding.

In addition to the new papermaking machine, the installations will include stock preparation equipment and a new turbine to increase the present power plant capacity.

The estimate for the overall cost, including construction and machines and equipment, is placed at $2,500,000.

National Waterproofing Buys Crepe-Kraft Business

CAMDEN, N. J.—The National Water-Proofing Company at Front and Beckett Streets, manufacturer of asphalted, oiled and waxed papers, both plain and reinforced, has purchased the Crepe-Kraft Company of 114 Adams Street, Newark. The Crepe-Kraft company produces a line of crepe papers, both treated and untreated.

The sales policy of Crepe-Kraft will remain the same, and will be handled by the Newark office, operating as The Crepe-Kraft Company, Division of the National Water-Proofing Company. Other business will be handled by the main office at Camden.

Newsprint Stocks Up In Publishers Hands

NEW YORK—Daily newspapers reporting to the American Newspaper Publishers Association had stocks of newsprint in transit and on hand representing an over-all average of 31 days' supply at the end of June 1947. This is an increase of 3 days over May 1947. This supply of 31 days at the end of June 1947 compares with 30 days at the end of June 1946, 45 days at the end of June 1945 and 41 days at the end of June 1941.

Daily newspapers reporting to the ANPA consumed 292,664 tons of newsprint in June 1947 compared with 259,284 tons in June 1946 and 242,404 tons in June 1941. This was an increase in June 1947 over June 1946 of 12.9% and an increase over June 1941 of 20.7%. The year 1941 was the base for calculating allowable use for newspapers under WPB Order L-240 until revoked effective December 31, 1945.

The total estimated newsprint consumption in the United States for June 1947 was 400,910 tons which includes all kinds of uses of newsprint. For the first six months in 1947 it is estimated to be 2,357,037 tons. During the first six months of 1947 the reporting newspapers used 1,720,637 tons of newsprint, an increase of 15.3% over the first six months of 1946 and an increase of 17.3% over the first six months of 1941.

St. Regis Takes Over New Vancouver Plant

VANCOUVER, B. C.—St. Regis Paper Company (Canada) Ltd. has taken possession of their new plant at 11th Avenue and Arbutus Street, Vancouver. This building and its equipment cost $500,000 and will provide employment for approximately 150 people.

The building was designed, engineered and built by the Dominion Construction Co. Ltd., Vancouver. It is a two-story, reinforced, concrete block of the modern industrial type, with sprinkler system and automatic heating installation. It is exceptionally well illuminated by both natural and fluorescent lighting. Windows occupy extensive space on three sides of the building on both levels.

Mead Takes Over Fireworks Plant

CHILLICOTHE, Ohio—Property of the National Fireworks, Inc., site of a Navy munitions plant, has been purchased by the Mead Corporation through its subsidiary, the Chillicothe Realty Company. C. R. Van De Carr, Jr., executive vice president of Mead, said the purchase was made to thwart piecemeal sale of the property which, for lack of buyers, was to have been sold at public auction.

Van De Carr said that Mead will use the plant for storage in the immediate future and may transform it into a converting plant. He added, however, that plans were tentative and that the firm may lease some or all of the property for warehousing or manufacturing purposes.

The property includes 542 acres with more than 200 buildings, ranging in size up to 20,000 square feet of floor space. The site has its own steam, electric, telephone, sewage and water distribution system and wells adequate for a small city.

Canadian Interests Acquire Perkins Tissue Mills

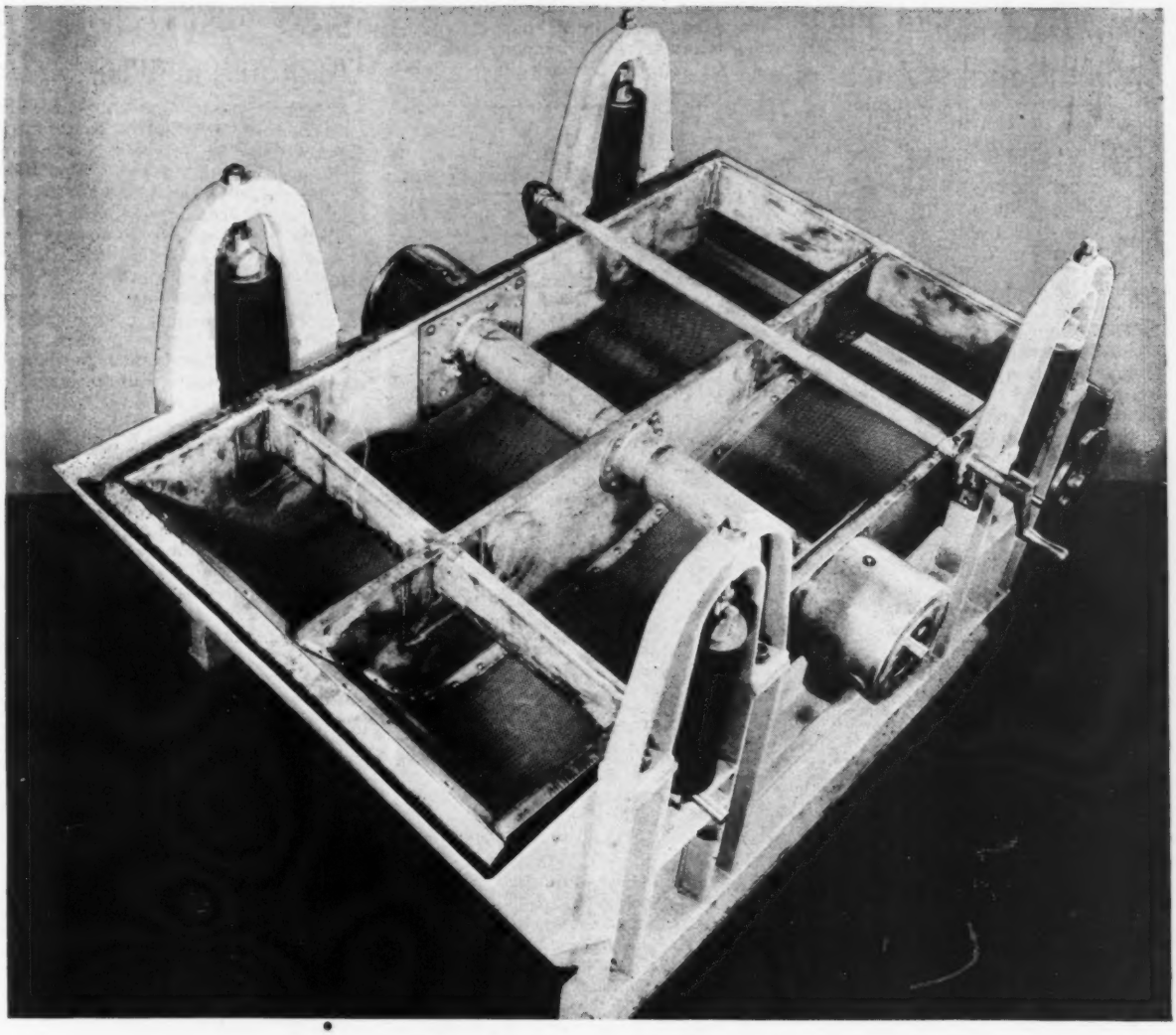
MONTREAL—Control of Perkins Tissue Mills Limited has been acquired by Canadian interests. New officers of the company are Philip H. Scowen, president, and Charles J. de Volpi, vice-president and general manager. There will be no change in policy or administration of the company as a consequence. Formerly control had been held in the United States. The company, which was organized in 1930, holds a dominant position in the field of converted papers and specialties. The plant is located in Montreal and products are distributed from coast to coast.

Perkins Paper Products Ltd. has been formed for the purpose of acquiring control of Perkins Tissue Mills Limited. Perkins Paper Products Ltd. will act as distributing agents as well as being the holding company while Perkins Tissue Mills Limited will be the manufacturing company.

American Bag and Paper Moves to Larger Space

WASHINGTON, D. C.—The American Bag & Paper Supply Company on August 15 will move to larger warehouse and office quarters, at 1496 H Street, N.E. The new quarters is an all-fireproof building, and features enlarged office floor space plus convenience of a warehouse immediately at rear of building.

The new location faces one of the busiest thoroughfares in the Nation's Capital. Six avenues merge at the intersection where the firm is located. An attractive neon sign costing $1,500 is being erected.



BIRD'S JONSSON SCREEN

is doing a great job on all kinds of pulp

The Jonsson Screen takes out the knots clean and whole but doesn't take good fibres with them. There's virtually no fibre loss in the tailings.

The Jonsson Screen turns out a tremendous quantity of pulp, handles high consistencies, uses very little power, is easy to install, operate and maintain. It's rapidly becoming the standard knotter and bull screen in a lot of mills.

The Screen to Use Ahead of Brown Stock Washers

The Jonsson Screen delivers stock to the washers free of knots and chips. It assures better vacuum and increases black liquor recovery. It handles any consistency from 1.3 to 2.25%; turns out up to 150 tons per day. Better look into it.

BIRD MACHINE COMPANY

SOUTH WALPOLE • MASSACHUSETTS

Paul Bachman Retires, With Riegel 47 Years

NEW YORK—Paul R. Bachman, vice-president of Riegel Paper Corporation, retired on July 1 after 47 years with the company and its predecessor, Warren Manufacturing Company. Mr. Bachman became sales manager in 1920 after 20 years' service with the company. In 1946 he was succeeded as manager of sales by A. P. Mitchell, who is also secretary of Riegel Paper Corporation.

Mr. Bachman started his business career on May 7, 1900 with the Warren Manufacturing Company as a clerk in the New York office. Three years later he went to the company's former mill in Brooklyn and worked there in cost accounting until 1907. That year he returned to the New York office in clerical work.

In 1910 Mr. Bachman entered the company's sales department. Ten years later he was advanced to the position of sales manager.

On January 8, 1925, Mr. Bachman was also elected secretary of the company and served in that capacity until March 30, 1929. On that date he was elected treasurer, an office he held for two years. He was elected a director in 1930. He became a vice-president on March 28, 1931.

Mr. Bachman has been in sales work 37 years, an officer of the company 27 years, a director 17 years and a vice president 16 years. He will continue as a member of the Board of Directors.

During World War II Mr. Bachman served for two years as a member of the Wood Pulp Allocation Committee of the War Production Board. For four years he was president of the Specialty Paper and Board Affiliates, and a member of its executive committee for 12 years. Mr. Bachman was one of a group of 14 paper executives who compiled the Paper Dictionary in 1940.

Lockport Felt Names Directors, Raymond Lee As Manager

LOCKPORT, N. Y.—Two new members have been added to the board of directors of the Lockport Felt Company and Treasurer Raymond J. Lee has been named general manager to succeed his father, former Senator William H. Lee, who continues as president.

New directors are: Mrs. Elizabeth M. Lee, vice president of the company, and Assistant District Attorney William E. Miller, member of the law firm of Holley & Miller.

Other board members, in addition to the president, vice-president and general manager, are: Bertram A. Audley, assistant to the president; Lester D. Carner, company secretary; Bert G. Stockwell and William W. Campbell, Jr.

PAUL R. BACHMAN
Retires from Riegel Vice-Presidency

Miss Edna Wilson has been named assistant secretary. Bertram A. Audley continues as assistant treasurer.

B-M-T Names Carson Seattle Division Manager

SEATTLE—Frank A. Carson has been named manager of the Seattle Division, Blake, Moffitt & Towne. He succeeds the late James C. Whitelaw, who died June fifth.

Carson entered the Blake, Moffitt & Towne organization in 1920, following his service in the Army during World War I. He assumes his new position after having had a wide experience in all branches of the paper business, including warehouse, office, purchasing, sales, and management.

In 1936 he was appointed assistant sales manager, and a few years later became department manager, supervising purchasing in addition to his sales activities. He was named sales manager of the Seattle division in 1942.

The Seattle division of Blake, Moffitt & Towne which Carson now heads is one of sixteen operated by the company in the principal cities of the west. Together with its Spokane division, Seattle has long distributed both printing and wrapping papers throughout the northwest, supplying many of the requirements of business and industry as well as special wraps and containers for the fruit and frozen food industries which are so prominent in the area.

Pete Wilson Feted on Retiring

ERIE, Pa.—Pete Wilson, retiring superintendent of the finishing room of the Hammermill Paper Co., was guest of honor at a farewell party recently arranged by operating superintendents of the mill.

Sigel Returns from Atenquique Visit

NEW YORK—Arthur J. Sigel, vice-president of Gottesman & Company, Inc., returned over the weekend from a visit to the new Kraft Pulp mill of Compania Industrial de Atenquique S.A. at Atenquique in the state of Jalisco, Mexico, for whose product Gottesman & Company, Inc. are exclusive selling agents.

The mill, situated in west central Mexico, is of modern design and construction, special attention having been given to earthquake-proofing of all buildings. Started early this year, the mill is already operating at its rated capacity of about 120 tons daily of high grade Kraft pulp. The mill is located in most picturesque surroundings in territory which will be able indefinitely to supply an abundance of the very finest pulpwood, the timber limits covering approximately 375,000 acres. Great emphasis is placed on quality production and large amounts have been spent to insure efficient operation. An intensive road building program has already resulted in extending the districts in which the company may advantageously secure its pulpwood. Two railroad bridges have been constructed across the River Tuxpan and the Atenquique creek to connect with the lines of the Mexican National Railway, thus making possible all rail shipments to any point in the U.S.A.

Because of the present insistent demand for fibers, the Atenquique Kraft Pulp has found a ready welcome in this market and much favorable comment has been heard as to the quality of the product.

Neblett Joins Caskie As District Manager

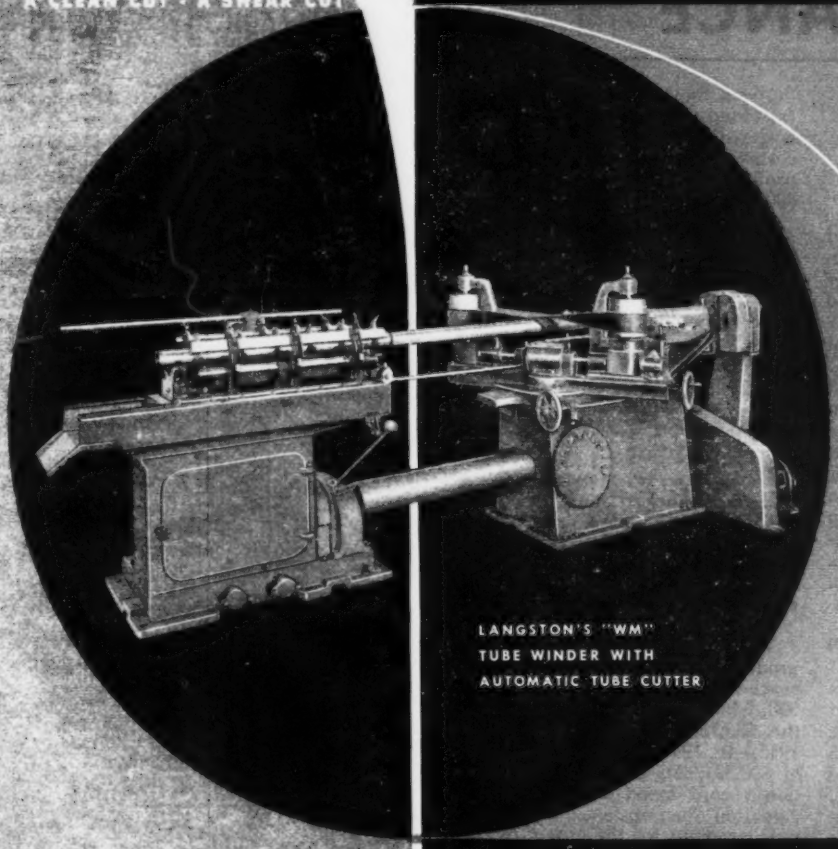
CHARLOTTE, N. C.—E. Ryland Neblett, for 21 years with Standard Paper Manufacturing Company, Richmond, Va., became associated with Caskie Paper Company, on July 1, 1947. Red Neblett worked in different mill departments for Standard, was superintendent of the mill, was sales representative in New York city, manager of Standard's Chicago office, and since 1944 was assistant sales manager at the home office in Richmond.

He becomes a district manager for Caskie, wellknown fine paper distributors in the Southeast.

Zern Heads Cady Sales

CHICAGO — Donald S. Zern, who is located in the home office, has been named general sales manager of E. J. Cady & Company. Frank C. Heyes, Associates, Chicago, will act as foreign and Canadian representatives. Walker-Goulard-Plehn Company, Inc., New York, and Colton Paper Company, San Francisco, will be representatives on their respective coasts.

A CLEAN CUT - A SHEAR CUT



LANGSTON'S "WM"
TUBE WINDER WITH
AUTOMATIC TUBE CUTTER

HERE IS A HIGH SPEED MACHINE WHICH AUTOMATICALLY MAKES ACCURATELY CUT, UNIFORMLY WOUND TUBES OF ANY DIAMETER FROM ¾" I.D. TO 4½" O.D. THE "WM" MAKES MULTIPLES OF VARIOUS LENGTH TUBES UP TO A MAXIMUM OF 39". SPEEDS UP TO 150 F.P.M. DEPENDING ON ADHESIVES, TYPE OF PAPER, ETC. WITH INCREASED FACILITIES, DELIVERIES ARE MUCH BETTER. MAY WE HEAR FROM YOU?

SAMUEL M. LANGSTON COMPANY, CAMDEN, NEW JERSEY.

TUBE WINDERS
AND CUTTERS

LANGSTON

FINANCE

Kimberly Clark Issue Placed on Market

NEW YORK—Underwriters late last week placed on the market an isue of 300,000 shares of common stock of Kimberly-Clark Corporation, manufacturer of cellulose wadding and other paper products. The stock was priced at 24⅞ a share.

The company will use proceeds of the financing, estimated at $6,725,000, toward expansion expected to cost $45,700,000 by 1949. By April 30 about $15,810,000 had been spent and the rest is to be raised from the current sale of stocks, the issuance of notes and of bonds of a Canadian subsidiary, and from general funds. Projects in execution include expansion of manufacturing facilities at Lakeview Mill, Neenah, Wis.; construction of a mill at Niagara, Wis.; acquisition and conversion of a plant at Memphis, Tenn., and construction of a sulphate pulp mill at Terrace Bay, Ont.

Kimberly-Clark Corporation's profits showed a slight decline in the second as compared to the first quarter, but were more than twice as great for the first six months of 1947 as they were for the corresponding period of 1946.

After taxes and provision for preferred stock dividends, second quarter profits amounted to $1,601,912.25, equivalent to $1.33 per share for 1,199,250 shares, as compared with 59 cents for the same quarter of last year. Net earnings per share for the six months ended June 30, 1947, were $2.81, as compared with $1.13 for the first six months of 1946.

Second quarter sales were somewhat larger than in the first quarter, but costs went up faster than sales, so that profits for the quarter are about $170,000 less than for the first quarter.

Participating here in the underwriting are: A. C. Allyn & Co., Inc.; A. G. Becker & Co., Inc.; Clark, Dodge & Co.; Dillon, Read & Co., Inc.; Drexel & Co.; Glore, Forgan & Co.; Graham, Parsons & Co.; Harriman Ripley & Co., Inc.; Harris, Hall & Co.; Hayden, Stone & Co.; Hornblower & Weeks; Kidder, Peabody & Co.; Kuhn, Loeb & Co.; Lee Higginson Corporation; Merrill Lynch, Pierce, Fenner & Beane; Paine, Weber, Jackson & Curtis; Shields & Co.; Stone & Webster Securities Corporation; Union Securities Corporation; White, Weld & Co., and Dean Witter & Co.

British Columbia Reports Newsprint Value Up

VANCOUVER, B. C.—Pulp and paper production in British Columbia in 1946 reached a total valuation of $41,801,000, which is a gain of $8,019,000 over the $33,782,000 production value for 1945. In 1944 production was valued at $30,391,000. Until 1941 the production record stood at $27,723,000, the valuation then dropped but has been rising rapidly for the past three years.

Newsprint production in British Columbia last year totaled 259,921 tons, which compared with the 253,671 tons produced last year, is a gain of 6,250 tons or 2.4 percent. Production of other types of paper is steadily increasing in the province.

See St. Regis Sales at $140 Million for Year

NEW YORK—The St. Regis Paper Company of New York and its consolidated subsidiaries report sales for the first six months of 1947 of $69,033,514 as compared with sales of $35,336,923 during the same period last year. Net earnings after taxes for the first half of this year amounted to $7,696,147 as compared with net earnings of $5,563,603 for the entire year 1946. These figures were contained in a financial statement released after the monthly meeting of the St. Regis board of directors.

Announcement also was made of the sale by St. Regis to a group of insurance companies of a $10 million issue of 20-year debentures to yield 2.80 per cent.

Proceeds of the sale will be used in rounding out the company's program of modernization and improvement in its various plants. The debentures were sold at par to the following companies: Metropolitan Life Insurance Company, John Hancock Mutual Life Insurance Company, Massachusetts Mutual Life Insurance Company, Aetna Life Insurance Company, and Sun Life Assurance Company of Canada.

"If shipments continue at present levels, total sales for 1947 will approximate $140,000,000," Roy K. Ferguson, president, said.

Though already serving 21 industries, new uses are constantly being found for St. Regis products. The company's heavy-duty multiwall paper bags have recently been widely adopted by members of the milling industry for the shipment of flour, an important market in itself. Multiwall bags

(Continued on page 16)

FINANCIAL RECORD OF THE WEEK

New York Stock Exchange

High, Low and Last for Week Ending July 19, 1947

STOCKS

	High	Low	Last
A. P. W.	4⅞	4½	4⅞
Armstrong Cork Co.	47¾	46⅝	46⅝
Armstrong Cork Co., pf.	106	105⅞	106
Celotex Corp.	28	26⅝	26⅝
Celotex Corp., pf.	20½	20	20
Certain-Teed Products Corp.	16⅞	15¾	15¾
Certain-Teed Products Corp., pf.	....	....	....
Champion Paper & Fibre Co.	23⅞	22¾	23⅞
Champion Paper & Fibre Co., pf.	105	104½	104½
Congoleum Nairn Co.	28	27	27
Container Corp. of America	42½	40¾	42⅜
Crown Zellerbach Co.	31⅞	30	31⅞
Crown Zellerbach Co., pf. 4.20	105⅞	102	105⅞
Crown Zellerbach Co., 4 pf. 4	120	115	120
Dixie Cup Co.	34⅝	33	34½
Dixie Cup Co., A	53⅞	53	53⅝
Flintkote Co.	34	31¾	31¾
Flintkote Co., pf.	107½	107	107½
Robert Gair	8⅜	7⅞	8¼
Robert Gair, pf.	20	19¾	20
International Paper Co.	49⅝	47¼	47¼
International Paper Co., pf.	106	105¼	105¾
Johns-Manville Corp.	45	43⅞	44⅜
Johns-Manville Corp., pf.	120½	119	119
Kimberly-Clark Corp.	25½	24¾	25½
Kimberly-Clark Corp., pf.	109	107½	109
Mac Andrews & Forbes	....	....	....
Mac Andrews & Forbes, pf.	....	....	....
Marathon Corp.	26⅛	25½	25¾
Mead Corp.	23⅛	21⅜	22¼
Mead Corp., pf. 4¼	100	99½	100
Mead Corp., pf. 2	49	47¾	49
National Container Corp.	40	39	39⅛
Paraffine Companies, Inc.	....	....	....
Paraffine Companies, Inc., pf.	....	....	....
Rayonier, Inc.	24¼	22¾	23¾
Rayonier, Inc., pf.	36½	35¾	36
Ruberoid Co.	57¼	55¼	55¼
Scott Paper Co.	45¾	45	45⅜
Scott Paper Co., pf.	99¾	98½	99¾
Sutherland Paper Co.	41	39⅞	41
Union Bag & Paper Corp.	33⅞	32	32¾
United Paperboard Co.	15⅜	14	14¾
U. S. Gypsum Co.	106¾	102½	103
U. S. Gypsum Co., pf.	187	187	187
West Virginia Pulp & Paper Co.	41	40	40
West Virginia Pulp & Paper Co., pf.	112	111⅞	112

BONDS

Abitibi Pulp & Paper Co., 5s '53	....	....	....
Celotex Corp., 3¾s '60	....	....	....
Certain-Teed Products Corp., 5½s '53	....	....	....
Champion Paper & Fibre Co., 3s '65	103⅞	103⅞	103⅞
Mead Corp., 3s '66	....	....	....

New York Curb Exchange

High, Low and Last for Week Ending July 19, 1947

STOCKS

	High	Low	Last
Great Northern Paper Co.	43¼	42⅛	43¼
St. Regis Paper Co.	....	....	....
Taggart Corp.	9½	9½	9½

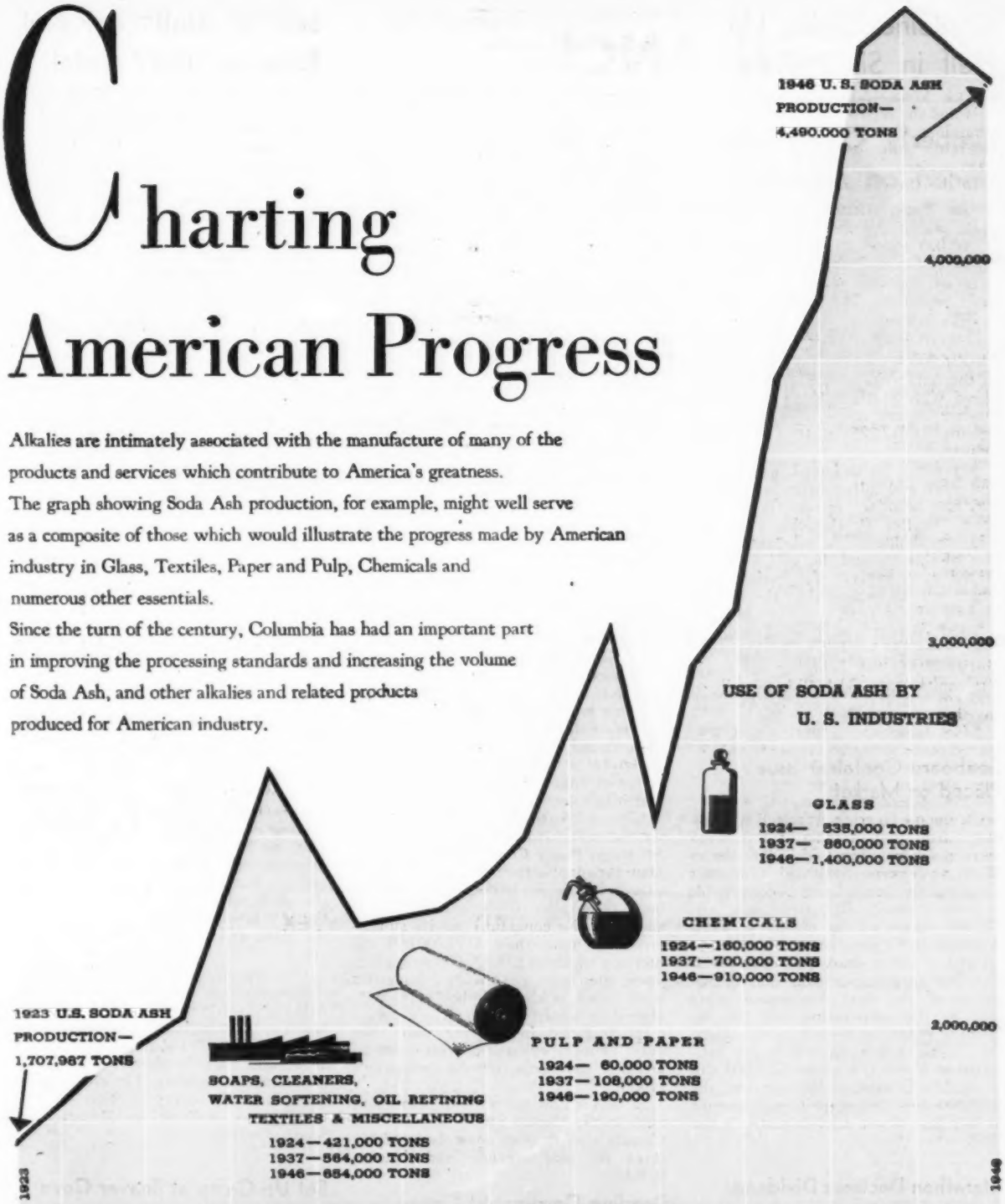
BONDS

American Writing Paper Co., 6s '61	....	....	....

Charting American Progress

Alkalies are intimately associated with the manufacture of many of the products and services which contribute to America's greatness. The graph showing Soda Ash production, for example, might well serve as a composite of those which would illustrate the progress made by American industry in Glass, Textiles, Paper and Pulp, Chemicals and numerous other essentials.

Since the turn of the century, Columbia has had an important part in improving the processing standards and increasing the volume of Soda Ash, and other alkalies and related products produced for American industry.



COLUMBIA ESSENTIAL INDUSTRIAL CHEMICALS
Soda Ash • Caustic Soda
Liquid Chlorine • Sodium Bicarbonate • Pittchlor and Pittcide (*Calcium Hypochlorites*) Silene EF (*Hydrated Calcium Silicate*) • Calcium Chloride • Soda Briquettes (*Iron Desulphurizer*) • Modified Sodas • Caustic Ash Phosflake (*Bottle Washer*) Calcene T (*Precipitated Calcium Carbonate*)

COLUMBIA CHEMICALS

PITTSBURGH PLATE GLASS COMPANY
COLUMBIA CHEMICAL DIVISION

FIFTH AVENUE at BELLEFIELD, PITTSBURGH 13, PENNA. · Chicago · Boston · St. Louis
Pittsburgh · New York · Cincinnati · Cleveland · Philadelphia · Minneapolis · Charlotte · San Francisco

Container Sales Up Half in Six Months

NEW YORK—Net income in the first half and the second quarter of 1947 for Container Corporation showed a considerable gain over the comparable 1946 periods.

In the three months to June 30, net amounted to $2,482,280, equal to $2.51 a common share, compared with $1,659,764, or $1.96 a share, in the corresponding period of 1946. In the first six months to date, net was $5,664,668, or $5.72 a share, against $3.17 a share, a year ago.

Net sales in the six-month period rose 55.9 percent to $63,461,921, from $40,716,000. Provision for income taxes in the half year was $3,568,668, compared with $1,650,273. In the second quarter income taxes were $1,531,484, against $1,017,275 in the 1946 three months.

A reserve for deferred maintenance and year end adjustments of $3,817,206 has been set up on the balance sheet. Walter P. Paepcke, chairman, told stockholders. A substantial portion of this amount, he said, is represented by a reserve for maintenance which will be expended in the last six months of the year.

Total current assets as of June 30, 1947, were $23,398,417, and current liabilities $9,551,494, bringing net working capital to $13,846,923, a gain of $766,625 from the figure on Dec. 31, 1946.

Seaboard Container Issue Placed on Market

CHICAGO—Herrick, Waddell & Company, Inc., and Associates this week marketed a new issue of 75,000 shares of 5½ per cent Seaboard Container Corporation cumulative convertible preferred stock, $20 par value, and 112,500 shares of the company's class A common, $1 par. The preferred was offered at $20 a share and common at $6. The corporation said that 37,500 shares of the class A common were sold by the corporation and the remaining 75,000 by certain stockholders. Of the net proceeds, which are estimated at $1,490,173, about $270,000 will be used to redeem, at 105 per cent, the $250,000 outstanding principal amount of five-year 6 per cent debentures due 1950.

Marathon Declares Dividends

ROTHSCHILD, Wis.—Directors of the Marathon Corporation last week declared regular quarterly dividends on both the common and preferred stock of the company. The common dividend of 25 cents is payable August 20, 1947, to stockholders of record July 31, 1947. The preferred dividend of $1.25, after payment of Wisconsin dividend privilege taxes, will be paid October 1, 1947, to stockholders of record September 20, 1947.

Worthington Shipments Rise In Second Quarter

HOLYOKE, Mass. — Shipments of the Worthington Pump & Machinery Corp. during the second quarter of this year exceeded the $20,409,422 reported for the first three months.

With profit margins being maintained to date, net profit for the June quarter, it is estimated, will be ahead of the $1,702,657, or $5.51 a share on the common, reported for the first quarter. For 1946 the company reported billings of $59,768,438, and net income of $3,605,238, equal to $10.60 a share on the common.

See St. Regis Sales at $140 Million for Year

(Continued from page 14)

are now being used for the packaging of fertilizer, cement, sugar, chemicals, poultry and dairy feeds and nearly 400 other diversified commodities. In addition to producing multiwall paper bags, the company also designs and manufactures special bag-making and bag-filling machinery.

St. Regis also supplies more than 14 per cent of the country's groundwood printing papers, bleached and unbleached, of the grades used in telephone directories, mail order catalogues, telegraph blanks, magazines and books. Another of its specialties, Panelyte, a light-weight laminated plastic, has proved of great value in such diverse fields as mechanical refrigerators, radios, and airplanes. Decorative Panelyte is manufactured in a wide range of colors for bar tops, table tops and other decorative uses.

Sales increases have followed steadily the successful advancement of the St. Regis Paper Company's long-range plan for plant expansion and modernization begun in 1935. This plan has been responsible for raising the total assets of the company and its subsidiaries to more than $110,000,000, an increase of about $34,000,000 in slightly more than one year. New properties have been added, timberlands purchased or leased and much new equipment installed in existing mills, not only for more efficient operation but to broaden the scope of the company's products.

St. Regis now operates 43 plants and mills in the United States and three in Canada and owns or controls 1,442,140 acres of pine, spruce and balsam stands.

Reading Corrugated Closes Potsdam Paper Mill

POTSDAM, N. Y.—The Potsdam Paper Mill has been closed. While officials of the company refused comment, it was reported that the mill will remain closed indefinitely. Formerly known as the Unity Paper Mill, the mill is owned by the Reading Corrugated Company of Reading, Pa. It is understood the company has built a larger mill in Erie, Pa.

NEPCO Half Year Net Exceeds 1947 Total

PORT EDWARDS, Wis. — Nekoosa-Edwards Paper Company earned net income after taxes of $1,459,000 for the six months ended June 30, a total exceeding net after taxes for all of 1946. An extra dividend of 25 cents a share will be paid September 30 to stockholders of record September 20.

The net for the first six months equalled $4.63 a share, compared with earnings of $508,603 in the first six months of 1946 and $1,023,130, or $3.25 a share, for the full 1946 year.

The stockholders and directors held their annual meetings Wednesday, July 16. John E. Alexander, L. M. Hanks, A. S. Puelicher, Judson G. Rosebush, Guy O. Babcock and C. A. Jasperson were reelected directors, and S. A. Casey, head of the company's law department, was elected as the seventh director.

All officers were reelected: Alexander, president and general manager; Babcock, vice-president; Jasperson, secretary-treasurer; and Harry Deyo, assistant secretary-treasurer. Also reelected were the three vice-presidential executive department heads: N. E. Nash, vice-president; C. H. Reese, vice-president in charge of manufacture; and A. C. Remley, vice-president in charge of sales.

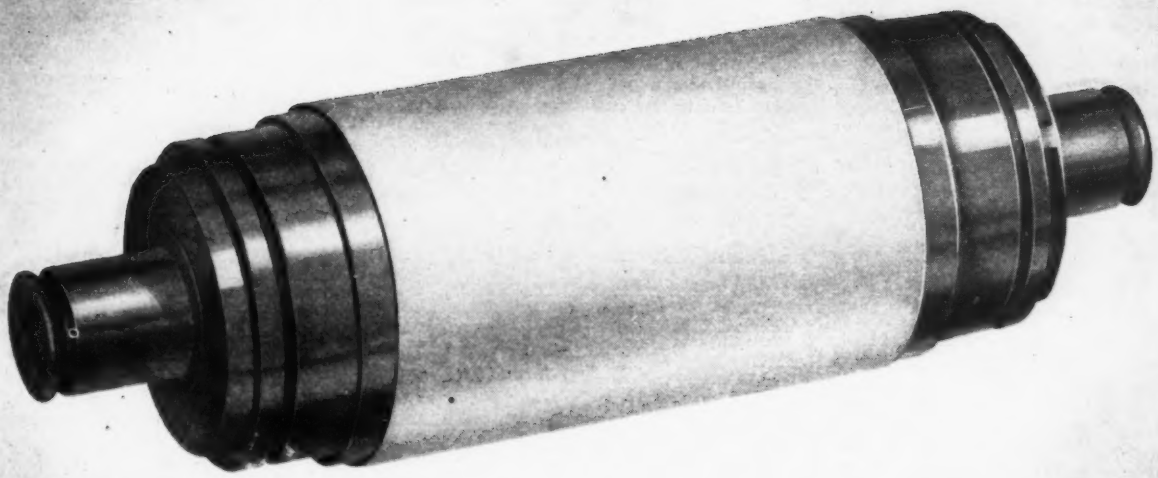
New Container Box Plant Placed in Operation

GREENSBORO, N. C.—This city's newest large industrial plant, the $600,000 Container Corporation of America folding box factory, has begun operations on East Market street extension. Officials said machinery is still being set up, but all equipment is now at the plant site. One shift is in operation. When on a full two-shift basis, the plant will employ 200 to 250 workers.

J. E. Purvis, of Philadelphia, is general manager of the plant; F. B. Bruce, Atlanta, is plant manager; C. O. Massey, Birmingham, superintendent; James Bruen, Philadelphia, office manager; and Clay Walker, Philadelphia, maintenance engineer. The corporation has plants in every section of the country, as well as in Mexico and South America.

Set Up Camp at Beaver Cove

VANCOUVER, B. C. — Erection of the new cookhouse, dining hall, wash rooms, office building, commissary and the first of several modern six-man bunkhouses have now all been completed at Beaver Cove where the Northern Pulpwood Limited, a subsidiary of Pacific Mills Limited, is carrying on logging operations. The dining hall at the camp will seat 160 persons, while the cookhouse is 56 by 90 feet in area.



Perkins Calender Rolls are the natural result of the longest and broadest experience in this highly specialized industry.

B.F. PERKINS & SON, INC.

ENGINEERS AND MANUFACTURERS

HOLYOKE, MASSACHUSETTS

Kimberly-Clark Will Operate Coosa Mill

(Continued from page 9)

ordnance plant manufactured smokeless powder and high explosives during the war."

Mr. Norton went on to say that production at the Childersburg plant "will help to solve newsprint shortages in the South," and added that Kimberly-Clark had agreed to purchase bleached sulphate produced as a by-product at the mill.

As noted, the newsprint mills committee of the Southern Newspaper Publishers' Association was associated with the Coosa River Newsprint Company in the Childersburg development.

The Kimberly-Clark Corporation, now in its seventy-fifth year of operation, owns and operates eight pulp and paper mills in the United States, in addition to extensive subsidiary and affiliated operations in this country and Canada. While the bulk of its direct activities is now in the manufacture of pulp, book paper and creped wadding (the latter is manufactured and converted for a long-standing customer, International Cellucotton Products Company, and under such trade-names as Kleenex, Kotex, Delsey, etc., represents perhaps the most familiar sanitary creped wadding products in the world), the corporation as long ago as 1872 was engaged directly in the manufacture of newsprint.

Before World War I, the corporation introduced in America paper for the first rotogravure Sunday newspaper section—published by the New York Times in 1914—and subsequently built a nation-wide market of importance for that product. By supplying pictures for reproduction, along with other pioneer merchandising effort, Kimberly-Clark's work established Sunday rotogravure picture sections on a wide front. This helped to lead the corporation into the development of several higher grades of book paper. (These are some of the developments introduced by corporation research referred to by Mr. Norton. The corporation's research and technical department is today the largest in the industry, employing upward of 160 scientists and technical personnel. Its central engineering department employs a total of over 150 specialists in that field of the business.)

While newsprint manufacturing was interrupted as a direct activity shortly before the first World War, the corporation was instrumental several years later in establishing what was to become the Spruce Falls Power and Paper Company, Ltd., at Kapuskasing, Ontario. This mill, which continues as an affiliated operation in partnership with United States publishing interests like the New York Times, has an annual newsprint paper capacity of approximately 200,000 tons, and a large tonnage of sulphite and groundwood pulps. It has been in steady operation since 1928, with a supporting community upward of 5,000 persons. The corporation has developed three other such communities, from the ground up, in the course of establishing various manufacturing operations throughout North America.

The corporation currently has an unprecedented expansion program in various stages of completion. This program is considered to be the largest of its kind in the industry, totaling over $45,000,000 for new productive facilities designed to balance pressures for its specialized segments of trade and consumer product demands.

Thilmany Employes Join In Blood Donor Bank

KAUKAUNA, Wis. — A blood doner bank has been set up at Thilmany Pulp and Paper Company's mill, with 82 employes signed up as volunteers. Lawrence Bouche is chairman, and members of the committee are Henry Maes, Sam Pomeroy, Harvey Reichel and Clarence Kastell.

The volunteer group's members are being typed at St. Elizabeth hospital, Appleton, and will answer calls from the hospital or physicians and surgeons of this area for blood. The typing will be a time-saver when transfusions are necessary.

During the war, Thilmany employes were among the first to answer the call of the Red Cross for volunteers to the blood bank in the area, and many are members of the Red Cross gallon club. A total of 8,338 pints of blood were received in the county for the wartime blood bank, and of this number about 1,000 Kaukauna donors reported, a majority of the latter being Thilmany employes.

Powell River Increases Its Power Site

VANCOUVER, B. C.—Work on raising the height of the Scanlon dam at Stillwater, B. C., is now in progress for the Powell River Company Ltd. The dam will be increased 20 feet in height to raise the head of water to 412 feet.

When completed the dam will contain 90,000 yards of concrete behind which will be some 16 lakes in a drainage area of 184 square miles. The length of the dam is 715 feet and when completed it will rise 201 feet above the bedrock of the river. Thus the hydro-electric power available to the Powell River Company paper mill, 17 miles distant, will be considerably increased to meet plant expansion needs.

Community Elects Shattuck

NEENAH, Wis. — S. F. Shattuck, retired vice-president of Kimberly-Clark Corporation, last week was elected president of the Community Chest of Neenah and Menasha.

Ambridge Denies U. S. Right to Subpoena

TORONTO, Ont.—Abitibi Power and Paper Company does not like the idea of the Federal court for the southern district of New York, or any other United States court, presuming to subpoena officials of Canadian pulp and paper concerns to give evidence at hearings in the United States.

"I do not consider the courts of the United States have any right to subpoena officers of the Abitibi Power and Paper Company, and they will not get me to attend hearings in the United States or give any information they may see fit to demand," said D. W. Ambridge, president of Abitibi, when asked for his views on the action being taken by the Federal court in subpoenaing Canadian citizens.

These citizens are officers of Canadian International Paper Company, a Quebec corporation. They are being asked to produce evidence in connection with a grand jury investigation in New York, apparently being made in an effort to prove violation by this and other Canadian companies of the U. S. anti-trust laws in relations to newsprint paper.

No officer of Abitibi has been subpoenaed yet, Mr. Ambridge said, "Officers of a Canadian company who are Canadian citizens cannot properly be subpoenaed outside the U. S." he said.

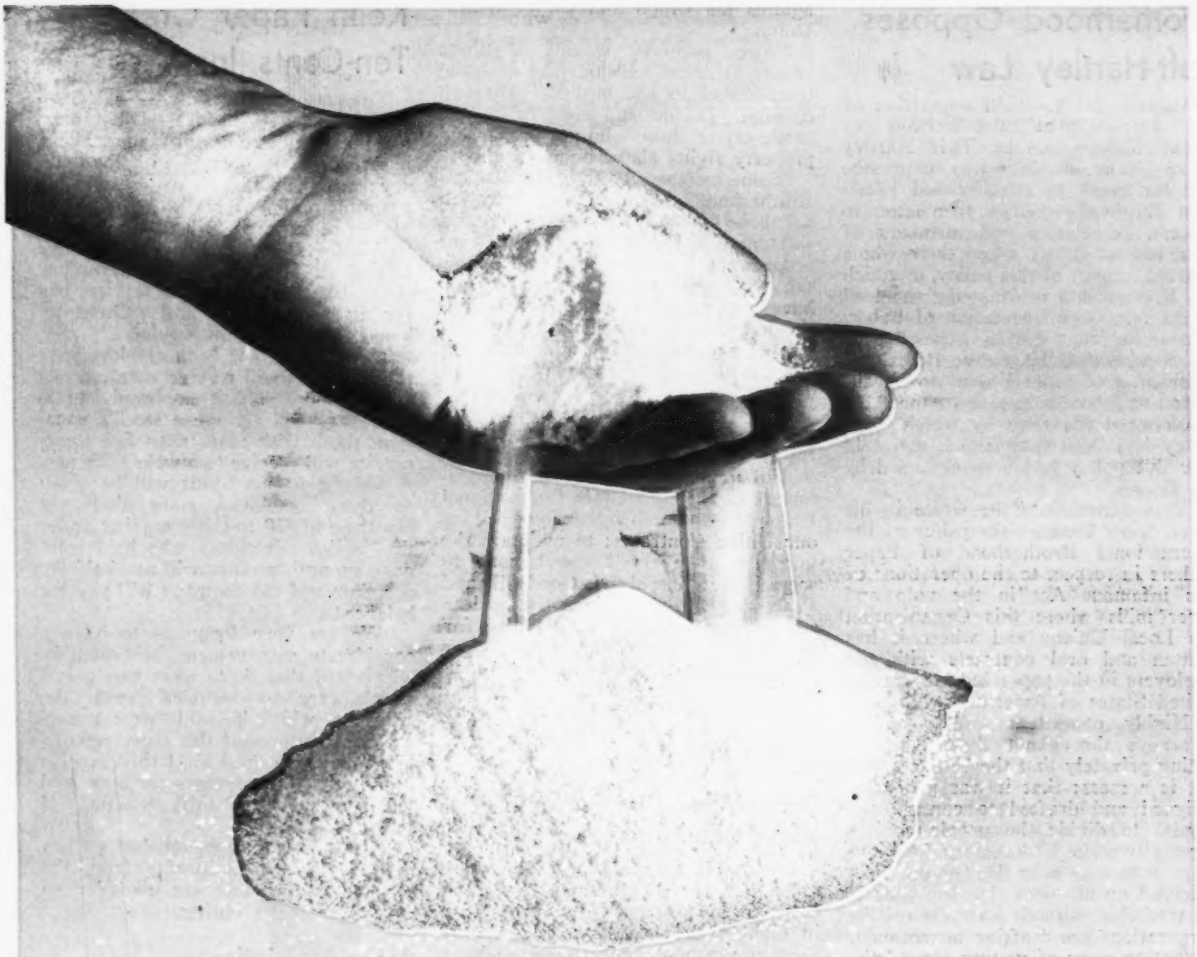
Resentment of Canadian businessmen against the U. S. Department of Justice investigating of the newsprint industry has been called to the attention of Federal Judge Henry W. Goddard, in a memorandum and affidavit filed by the attorneys for International Paper Co. and its affiliates, according to Editor and Publisher.

"I wish the people engaged in the newsprint industry could be left to maintain friendly relations with their publisher-customers in the U. S.," Mr. Ambridge said.

Waste Dealers Will Oppose Export Free Time Cuts

NEW YORK—The National Association of Waste Material Dealers, Inc. is taking steps to oppose two proposals which would vitally affect members engaged in foreign trade. One proposal would cut down the free time at North Atlantic ports on export traffic except grain from ten days to seven days, excluding Sundays and holidays. The other proposal would reduce from five days to 48 hours free time on harbor lighterage in connection with New York and Brooklyn stations on carload export traffic.

A hearing is to be held on this matter on Thursday, July 24th, Room 401, 143 Liberty Street, New York at 10:30 Eastern Daylight Saving Time. The Association is also formulating plans for opposing the various substantial freight increases which the railroads are requesting.



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REPORTS from paper and board mills indicate that this new addition to the Hercules line of fine papermaking chemicals offers important properties that may be valuable to *you*. Applied from the size press or calender water box, Hercules CMC improves the surface and strength properties of paper. Of particular interest, it increases resistance to penetration of gloss inks, waxes, and oils. Added at the beater, it improves the strength properties of paper. Write for test sample.

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7-4

Brotherhood Opposes Taft-Hartley Law

ALBANY, N. Y.—Stiff opposition of the International Brotherhood of Paper Makers to the Taft Hartley Labor Relations bill was expressed late last week by Brotherhood President Matthew J. Burns. In a letter to officers, secretaries and members of local unions Burns asked their whole hearted support of this policy, in which the Brotherhood is following the lead of the American Federation of Labor. Recounting that during a session of the Brotherhood Executive Board the president and counsel went to Washington to attend a session of the AFL he sketched the steps by which AFL policy had been determined, and told how this policy had been endorsed by the Board.

"This declaration," he wrote in his letter, "now becomes the policy of the International Brotherhood of Paper Makers in respect to the operations of this infamous Act in the pulp and paper mills where this Organization has Local Unions and where it has written and oral contracts with the employers in the paper industry in the United States of America.

"Highly competent and reputable Attorneys throughout the Land are stating privately that the Taft-Hartley Act is a mess; that it was purposely designed and drafted to confuse the people; to divide the people and to eventually make it necessary for Government to take over the Unions. It is conceded on all sides that the Law is not workable. Already Lawyers for the Corporations are drafting memoranda, suggesting ways of getting around the impossible provisions of the Act where it tends to disrupt production.

"In our opinion the Act will eventually do to the country what the Prohibition Act did (Eighteenth Amendment to the Constitution and the Volstead Act). It made law violators out of ninety per cent of our citizens. That Act launched us into an era of gangsterism and graft. It destroyed all respect for law and for Government. It was repealed after fourteen years of debauchery. However, the Prohibition Act was given credit for being a "Noble Experiment."

"The Taft-Hartley Act is based upon a different philosophy. It presents a familiar pattern to us. It reminds us of something not very far in the background.

"Those who are seeking to destroy the only protection the working men and women have—their Union, have adopted the same idea of 'divide and conquer' through propaganda, untruths, and now through law. Every effort is being made to divide the workers. Members are being urged to oppose other Unions. The worker in a plant is urged not to pay dues. A group of workers is urged to desert one Union and establish another. All propaganda is designed to pit worker against worker. The individual member against his Union and Union against Union.

"When carefully studied, all these efforts to destroy Unions are designed to create chaos and bitterness through division. 'Divide and conquer' is the battle cry of those who put profits and property rights above human rights.

"Some members of the International Brotherhood of Paper Makers may fall for these schemes. It is hoped that this will not happen. However, clever propaganda, innocent in appearance, can accomplish surprising results. We have begun to see some of this division created in our ranks already. Unless we are constantly vigilant and on our guard, it may spread and weaken us.

"I ask our Local Unions to give wide distribution to the policy of this International Union, as declared herein and to make every effort to maintain the integrity of this International Union; to maintain the integrity of our Union Contracts; to maintain the integrity of every Local Union; to spread the Gospel of Goodwill and Peace for the paper industry, and to protect our Union from liability for damages and, if possible, to stay clear of situations where the injunction may be issued to destroy this International Union and its affiliates and put officers and members of the local unions in prison."

Brown Wage Rise Paves Way to End Strike

BERLIN, N. H.—A general wage increase of 13-cents-an-hour has paved the way for resumption of operations in eight struck plants of the Brown Company, paper manufacturers, where 2,800 employes have been idle since June 19.

Edgar E. Morris, works manager and Philip Smyth, president of local 12,175, United Mine Workers of America, announced agreement at a mass meeting of employes in Berlin high school. The wage hike is retroactive to May 1.

The union, now paid an average of 92 cents an hour, had asked a 14 cent boost and three paid holidays. The settlement made no mention of paid holidays but said the union would be entitled to present its case for other benefits to the company board of directors.

Merchants Paper Moves To Larger Quarters

BOSTON—Merchants Paper, Inc., has removed from 176 Federal street to 24 Farnsworth street, where the company has a carload siding and much more extensive floor space than previously.

Leo Saslaw, head of the company, who has returned from a tour of Canada, says, "Things never looked brighter everywhere I went." The concern, whose sales have improved in the new quarters, handles a full line of coarse paper, twine and specialty lines. Stanley Fine is in charge of the office and Alfred Rubino is sales manager.

Keith Paper Grants Ten-Cents Increase

TURNERS FALLS, Mass.—Fred Strobel, president of local 171, International Brotherhood of Papermakers, has reported a contract with the management of the Keith paper company granting mill workers wage increases of ten cents an hour and three other pay benefits. The contract, retroactive to July 1, also includes vacation pay scales based on length of service, pay for six legal holidays and a Christmas bonus, also based on service.

Those who have been employed six to 12 months will receive vacation pay for 20 hours. Those employed one to five years will receive a week's vacation, those with more than five years service will receive two weks with pay. A $15 Christmas bonus will be given to those employed more than six months and $10 to those serving under that period. Employes who hold company group insurance will pay half the premium and the company will pay the balance.

"We are very fortunate to have a considerate management, said Stroble, who noted that there were two points which were not included among the gains but which he said "were generous contributions of the management." Those working the 3 to 11 shift receive an additional four cents an hour and those on the 11 to 7 shift an additional six cents.

The company has established a Coca Cola fund and the profits from the sale of that product are used for an annual employes outing.

Paper Association Sets August Date

CHICAGO—The Chicago Paper Association has officially specified August 26 as the date for its annual golf outing at the Elmhurst Country Club. The Association expects an unusually fine turnout under the supervision of Joseph Druth of Chippewa Paper Products Company, chairman of the event. Members of the paper trade attending the regional sessions of the National Paper Trade Association on August 25 are expected to be on hand to bring the list of guests from mill and jobbings interests to a record level.

Legion Badges To Show Paper Machine Designs

APPLETON, Wis.—When the Wisconsin Department of the American Legion opens its convention here July 19, the delegates will wear badges on which will be portrayed three men working on a paper machine. The design was taken from a mural in the Outagamie (Appleton) county courthouse. It will be the twenty-ninth convention of the state organization. Colonel Dan Hardt of the Neenah Paper Company, Neenah, is general chairman.

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...THROUGH CHEMISTRY

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OBITUARY

Worthen Brawn Dies Aboard Queen Elizabeth

(Continued from page 9)

visit was increased by the presentation of a Kodachrome camera to him at the recent annual meeting of the Section at Poland Spring, Maine.

He was a loyal University of Maine alumnus and had to divide his interest in June between the Poland Spring meeting of TAPPI and the thirtieth reunion of his Class of 1917 at Orono. He was a member of the Masonic Order and had been Master of United Lodge A.F.&A.M. in Brunswick, Maine. He was an ardent fisherman and knew when and where the salmon were running in Maine and in the Pejepscot woodlands in the Maritime Provinces. He lived a full life and a wholesome one until his life was suddenly terminated. His visit to Europe would have added many friends to the Technical Association and to himself for he had tremendous ability for making friends.

He spent much of the few days prior to his departure with the secretary of TAPPI promoting fine plans for the Association's future. He was impressed and elated about the extremely generous plans that were being made in Europe for his reception and entertainment. He hoped to be present at the annual meeting of the Swedish Pulp and Paper Mill Engineers to be held in Copenhagen, Denmark, in August. A large group of Finnish pulp and papermakers were planning to greet him in a body at Helsinki.

It is most unfortunate that these fine opportunities could not materialize. The Technical Association lost a great leader, the industry lost a real papermaker, and many individuals lost a good friend in the passing of Worthen Earl Brawn.

A Cunard spokesman said that Mrs. Brawn, who was accompanying her husband, asked that the body be put ashore but it was impossible to do this because it was necessary for the liner to leave the harbor at high tide. The body must go to England and return before burial.

WORTHEN EARL BRAWN

C. Victor Hodder

TORONTO—C. Victor Hodder, 54, an official of the pulp and paper division of the Wartime Prices and Trade Board from 1941 to 1947, died Saturday, July 12, in Toronto General Hospital. He had suffered a stroke at his office the day before.

The late Mr. Hodder had been awarded the Order of the British Empire for his work with the pulp and paper industry during the recent war. He was born in Glasgow, Scotland, and came to Canada in 1914 and was overseas with the Canadian Army Medical Corps in the first world war. He was one of the founders of the firm of Hodder and Moffit, industrial accountants, of which he was a senior partner. He was vice-president of Opaque Patents, Ltd., managing secretary of the Canadian Paper Box Manufacturers' Association, secretary of the Society of the Plastic Industry (Canada) Inc., and secretary of Canada Bread Co., Ltd.

John Traquair

CHILLICOTHE, Ohio—John Traquair, research consultant for the Mead Corporation, died at his home here on July 19th of coronary occlusion. Mr. Traquair was born in Dumbartonshire, Scotland, in 1878, and was graduated from the Royal Technical College, Glasgow, Scotland, as a chemist, following which he was for fifteen years chemist in charge of the Blackhall Paper Mills and Glenfield Starch Works of Paisley, Scotland.

He came to the United States in 1913 as president of the Feculose Company of America. In 1920 he joined the Mead Corporation as a research chemist.

He was chairman of the Fibrous Raw Materials Committee of the Technical Association of the Pulp and Paper Industry, and a member of many other scientific professional societies. He was a charter member of the Technical Association and at one time a member of the TAPPI Executive Committee and was a recognized authority on a wide range of papermaking raw materials in addition to wood.

He is survived by his wife, a son, James Traquair, of Cincinnati, Ohio, and four daughters, Mrs. Oscar Martin of Springfield, Ohio; Mrs. Earl Adams, of West Palm Beach, Fla.; one in Venezuela, and another in Scotland.

Albert Miller

WISCONSIN RAPIDS, Wis. — Albert Miller, 67, died July 9 at his home in this city. When he retired in 1946, he was superintendent of the finishing room in the Biron division of the Consolidated Water Power and Paper Company, by which he had been employed for 41 years.

Clara Evershed Cowles

ROCHESTER, N. Y.—Mrs. Clara Evershed Cowles, vice-president of the A. B. Cowles Company, Inc., paper box manufacturers, died recently. She was the widow of Arthur B. Cowles who founded the company 32 years ago. Mr. Cowles died in 1939. A son survives.

Dreshfield Opens Office As Chemist Consultant

CHICAGO—Arthur C. Dreshfield has resigned as Technical Director of H. P. Smith Paper Company to establish a consulting practice in the paper and related industries, with headquarters at 401 W. Elm Avenue, LaGrange, Illinois.

He plans to offer a broad service to paper manufacturers, paper convertors, producers of raw and proprietary chemicals who supply those and related industries, and to paper consumers. His primary fields of activity will be stock preparation, sizing, coating, saturating, laminating, and the chemicals and engineering processes used in these operations. This service will consist of consultation with management and the technical staffs to render assistance in the direction and budgetary control of technical activities and their patent aspects; including the planning and guidance of programs in research, product planning and development, standard grade improvement, standardization of methods and products, plant operating problems, quality control of raw materials, intermediates, and finished products, and plant and laboratory safety engineering.

He is intimately acquainted with all phases of paper and board manufacture and use, as well as the manufacture of many chemical materials for these industries. He pioneered in the basic development and commercial exploitation of dry rosin size, and in the manufacturing processes of rosin, rosin size, satin white, wax and wax-rosin emulsions, casein, dried whey, alum, and sulphonated oils. Simultaneously, he made numerous contributions to the technical and patent literature of the art of paper making, paper chemicals, and testing methods.

Mr. Dreshfield is listed in "Who's Who in Chemistry" and is a member of The Technical Association of the Pulp & Paper Industry, The American Institute of Chemical Engineers, The American Chemical Society, and The Chemists' Club of New York City.

For service-tested pipe and tubing to meet every paper mill need

SEAMLESS ALLOY *pipe and tubes for handling various chemicals, pulp suspensions, and other liquids.*

TODAY the paper industry is under pressure to meet a production goal of 20,000,000 tons in 1947. That means you are being asked to produce paper at a tremendous rate on equipment that already has taken a terrific beating. Continuous operation at high temperatures and pressures and under severe corrosive conditions is bound to have taken its toll. Especially is this true of the pipe and tubing in your mills.

That is why we remind you that NATIONAL Tube is the world's largest and most experienced producer of alloy steel tubular products—that we can place at your service an unexcelled specialized experience in seamless alloy pipe and tube making.

Whether your plans call for the rehabilitation of present equipment or for the expansion of your facilities, it will pay you to bring your tubing problems to us.

As headquarters for alloy steel tubes we are qualified to give you sound engineering advice in the selection of the best tubing for the service intended.

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Packaging Council Meets in Madison

MADISON, Wis.—Problems confronting the United States packaging industry, and research here at the U. S. Forest Products Laboratory into effects of tropic and arctic exposure on packaging materials, were discussed at the second annual meeting of the Forest Products Packaging Council in June. About 50 members of the Council, formed last year to help foster progress in packing and packaging, attended.

Franklin E. Rolston, development engineer with the Dearborn Chemical Co., Chicago, was elected president of the Council to succeed A. A. Anderson, sales manager, Corrugated Container Co., Columbus, Ohio. Other officers elected were Neil A. Fowler, vice president in charge of research and sales, General Box Co., Chicago, vice president; and T. A. Carlson, Chief, Division of Materiel Containers, Forest Products Laboratory, secretary-treasurer. O. D. Lloyd, in charge of cleated fiberboard boxes, Hummel & Downing Co., Milwaukee; A. L. Whiton, general sales manager of the Chicago Mill & Lumber Co., Chicago; and H. T. Holbrook, sales engineer with the Standard Cap & Seal Corp., New York City, were elected to the Council's executive committee.

The Council is the outgrowth of extensive wartime packaging work done by the Forest Products Laboratory for the Ordnance Department, and most of its members are former FPL packaging consultants and engineers who guided the developments in packaging for overseas shipments.

Reviewing the packaging research at the Forest Products Laboratory during the past year, Carlson told the Council that some preliminary research is being carried on to ascertain the reaction of packaging materials under conditions of arctic cold. Among these are the strength of wood and plywood, holding power of fastenings, and the stability of waxes, asphalt, rubber, resins, moisture-vapor barriers, and other packaging materials.

He mentioned also studies of fruit and vegetable containers, fiber containers, heavy crate construction, and cooperation and consultation with representatives of industrial firms confronted with packaging problems. A farm organization is testing the Laboratory's aero-drop container, a wartime invention consisting essentially of a box with collapsible wings, for use in delivering semen for cattle insemination, he said.

Exposure of plywood panels and boxes to humid jungle conditions on Barro Colorado Island, Canal Zone, was described by K. W. Kruger of the Laboratory staff. This work is sponsored by the Army Air Forces and the Laboratory, to ascertain the effectiveness of preservative treatments in protecting plywood from delamination and decay. Results thus far, Kruger said, indicate that the toxic water repellent treatment of plywood by the hot-and-cold bath method is the most effective method tried, with 10-second dip treatments intermediate between that and no treatment. After 14 months' exposure, even the most heavily treated panels were adversely affected.

Export packaging problems were discussed by A. S. Roberts, marine insurance expert representing the North America Companies, Philadelphia. The United States, he said is "getting a black eye around the world," because the packaging practices followed by American exporters are not delivering goods undamaged. Roberts contrasted American export packaging practices with those of the British, who he said emphasize safe delivery in their trade relations. Prewar packing standards, Roberts warned, are, in many instances, inadequate today.

Don L. Quinn, introduced as the dean of packaging engineers, pleaded for an expanded program of container research at the Forest Products Laboratory, and called attention to the need for practical textbooks on containers. Speaking briefly on performance standards, he stated that there is a rapidly growing interest on the part of representatives of the railroads and of industry in this subject. Rule 41 which sets forth the Consolidated Freight Classification requirements for fiber containers, can be written, he said, on the basis of a performance standard in 20 typed lines.

Michigan Mill Men Play at Gull Lake

KALAMAZOO—William H. Astle, of the Michigan Paper Company, last week was named chairman of the Michigan division, American Pulp and Paper Mill Superintendents Association as that organization held its annual outing and field day at the Gull Lake Country Club.

Other officers elected were Herbert Johnston, Allied Paper Company, first vice chairman; William F. Hathaway, Kalamazoo Vegetable Parchment, second vice president; and O. W. Callighan, Edgar Brothers, re-elected secretary and treasurer.

The event was the largest in the history of the division. One hundred fifty members attended the buffet dinner in the evening and 72 participated in the golf tournament.

Prizes were awarded to golfers with low gross, low putts, blind bogies, most 4s, 5s, 6s, 7s and 8s and high gross. Other prizes were presented to the players with the least and most phoney money and the longest beard.

Paul Bartholomew of the Hawthorne Paper Company headed the program committee and was assisted by Ray Holden of Stowe-Woodward Company and Al Sherwood of the Sutherland Paper Company.

The next association meeting was set for September.

NPTA Selects August For Mid-West Meeting

NEW YORK—A Mid-West Regional Meeting of the National Paper Trade Association for members of both Fine and Wrapping Paper Divisions will be held at the Hotel Sherman, Chicago, August 25. There will be a morning session at 9:30 a.m. for members of the Wrapping Paper Division and a Fine Paper session at 2:30 in the afternoon. This date will permit the attendance of President Towne and Vice Presidents Luff and Ramaker, together with other members of the Executive Committee who will be in Chicago for a special meeting of the Executive Committee to be held on the previous day, Sunday, August 24. The full National staff with counsel will also be present.

The dates set also tie up with the annual Golf Outing of the Chicago Paper Association on Tuesday, August 26th. This always outstanding event will again be held at the Elmhurst Country Club just outside the city and from past experience will attract upwards of 350 paper merchants, manufacturers and mill representatives.

Badger-Globe Foremen Enjoy Annual Picnic

NEENAH, Wis.—Two Kimberly-Clark Corporation clubs arranged picnics recently. Badger-Globe Foremen's Club held its first annual family picnic at High Cliff, Lake Winnebago, on Sunday, July 20, and the Lakeview Supervisors' Club will have its picnic August 17 at Dynes' Country Club, near Hortonville, Wis.

At the Foremen's picnic all members and their families registered at the grounds, so that tickets were distributed for concessions. Games and contests were on the program for the children, and a ball game was held among the adults.

The Supervisors will have its picnic for members, wives and friends, with a ball game at 5 o'clock, a dinner at 6:30 and movies at 8 o'clock. Facilities of Dynes' will be available, with swimming, horseshoe courts, dancing, cards and other entertainment.

Set Hearing Date for Representation Plea

EAU CLAIRE, Wis. — James M. Shields, regional director of the National Labor Relations Board at Minneapolis, Minn., last week issued a notice of representation hearing July 23 concerning the Sterling Pulp and Paper Company and the United Paper Company at Eau Claire. The United Paper Workers of America (CIO) had filed an amended petition with NLRB alleging a question of representation had arisen among the company's 400 employes.

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Wyandotte Management Sets Sales Policies at Five-Day Meet

ST. CLAIR, Mich.—Top management and department heads of Wyandotte Chemicals Corporation recently met for a week at St. Clair Inn, with the sales staff of the Michigan Alkali Division of the Corporation. The Wyandotte sales staff spent one day inspecting the progress of the corporation's $25 million expansion program at the Wyandotte plants. The remainder of the week was devoted to outlining long range sales policies and discussing the distribution of the alkalies, synthetic detergents, calcium carbonates, and organic chemicals which will be available this coming year.

Bert Cremers, vice-president in charge of sales Michigan Alkali Division, set the keynote for the sales conference when he stated: "The hayride is over. We need to brush up on our selling rules. This present situation is unlike any previous business cycle—many materials are extremely short, while others are in comparatively long supply. No one can say that your company has let you salesmen down during the crucial period, nor can anyone say that your customers have been let down, because no promises were made by Wyandotte Chemicals that were not fulfilled. Your company has been operated in such a manner as to preserve for you, who now will sell our expanded production, our two most prized possessions—our good will and our traditions. We have tried to maintain in our sales forces the most important ingredient of successful salesmanship and customer service—your enthusiasm. The salesman who is equal to the task ahead will Work, Study, Plan, Build, and be Loyal."

Wyandotte Chemicals, as an organization, fulfills Mr. Cremer's formula for the task ahead as reported by William F. Torrey, senior vice president of the organization. Mr. Torrey stated: I am keenly disappointed in having to report that the plants which comprise our Expansion Program are not going to be completed on the dates originally announced. These delays have been unavoidable as far as our own efforts were concerned. We could not secure much vital and heavy equipment on the dates promised. But despite unavoidable delays and despite the fact that the original $25 million cost has been materially increased, we are able to report to our customers that we are definitely on the home stretch.

"We are particularly fortunate at Wyandotte Chemicals," Mr. Torrey continued, "in having a record of continuous and capacity production during the war years, and since then, without a single work stoppage due to labor difficulties. The morale of our employees is high. We expect to market the increased production made possible by these new plants with the continued uninterrupted cooperation of the production, technical and sales departments."

At the closing banquet Sid Kirkpatrick, editor of Chemical Engineering, stressed the need of absolute cooperation between management, production, sales, advertising, research and development to meet this "recessed depression" which may or may not be felt by the American chemical industry. E. M. Ford, president of Wyandotte Chemicals Corporation, greeted the salesmen present as "carriers of public relations" and paid a sincere compliment to their efforts and to Mr. Cremers' leadership. Mr. Ford stated, "Wyandotte Chemicals has confidence in the continued growth of our customers. As you saw on your inspection trip, we are proceeding with as much speed as the times will allow with the complete Expansion Program as announced in August, 1946. Although some companies have seen fit to cancel expansion plans, we see no reason for retrenchment of our Expansion Program."

Talks were made by the heads of the Research, Development, Market Research, Public Business, Export, Advertising, Production, Traffic and Controllers Departments of the Wyandotte organization. An additional report was made by the Pricing Committee who are announcing new commission rates for 1948 Wyandotte contracts for distributors, new equalization policies, and the elimination of the present one percent ten day discount; new terms to be net thirty days, effective January 1, 1948. On the last day of the conference short talks on assigned topics were given by managers of the Michigan Alkali Sales Division:

Of particular interest to the paper industry was the talk given by Howard Roderick, sales manager for Calcium Carbonate, Chlorine and Organic Chemicals. Mr. Roderick said in part: "In the past year-and-a-half, despite a critical shortage, we have supplied calcium carbonate for development purposes to any prospective customers. At the present time we are able to supply coating grade carbonate to all who are interested.

"The new Calcium Carbonate plant is the first unit completed in our $25,000,000 Expansion Program. The new plant practically triples our former total tonnage of all grades of Wyandotte Calcium Carbonate."

Speaking of chlorine, Mr. Roderick said: "New chlorine cars, long on order, will help us unravel some of our present distribution problems. However, all factors at present tend to show a continued shortage of chlorine.

Find Domestic Kaolin Holding Their Gains

WASHINGTON, D. C.—The war has given further impetus to the trend to domestic kaolins in the United States papermaking industry, the U. S. Tariff Commission reports in a special study of domestic kaolin production and its use.

Ordinarily, the paper industry takes from 55 to 60 per cent of kaolin consumed in this country, especially for book paper, and for periodicals as well as cardboard. For these purposes it is used either as a filler or to a lesser extent, for coating.

While English kaolins held a preference in pre-war days, war conditions raised the share of domestic use to 94 or 95 per cent of consumption. Before the first World War, imports supplied almost two-thirds of United States consumption.

The full report, No. 23 in the Tariff Commission's series of war-change studies, points out that there are two principal classes of kaolin—paper and potting—and respecting the category used in the paper industry; says:

"The paper industry, especially those branches of the industry producing paper for books and periodicals, and cardboard, is by far the most important consumer of kaolin. . . . In these products kaolins are used either as a filler or for coating, the amount used for filler greatly exceeding that used for coating purposes. For coating, the clay is mixed with casein and other materials to give a smooth, highly glossy finish to the sheet after it has been calendered.

"In a relatively new development of paper manufacture, machine coating, high grade clay, with or without adhesives is applied simultaneously to both sides of the paper web, obviating use of filler clay."

Crystal Tissue Elects

MIDDLETOWN, Ohio — Walter R. Bender was elected to the board at a recent meeting of directors of the Crystal Tissue Company. Mr. Bender is an attorney with offices in the Middletown Savings and Loan Building.

At the same time H. H. Harrison, who is vice-president in charge of production, was elected a member of the company's executive committee.

The Crystal Waxing Company, a subsidiary of the Crystal Tissue Company, also elected a new director, Stanley H. Reed, who is sales manager for the Tissue company.

Keith Paper Reelects

TURNERS FALLS, Mass. — Paul E. Hodgdon was recently reelected president-treasurer of Keith Paper Company. John W. Smead was reelected vice-president, and W. K. Prutzman, Richard J. Doolin and T. Richard Probst were reelected assistant treasurers.

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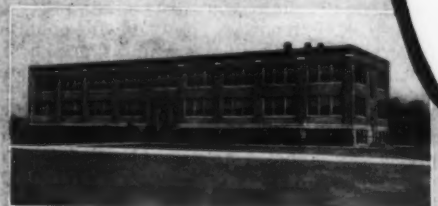
The makers of TITANOX invite you to submit your paper opacifying and whitening problems to their Technical Service Department. The competent staff in charge will be glad to serve you.



• Industry has profited by a host of basic advances in titanium pigment, pioneered in research laboratories such as this one in Sayreville, New Jersey. Here highly experienced technicians experiment constantly to improve existing grades of TITANOX pigments and to develop new types.

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British Columbia Establishes Low Accident Rate Records

VANCOUVER, B.C.—Accidents in the plants of MacMillan Industries Ltd. in British Columbia have been reduced as much as 60 percent through the introduction of an "employee participation" in a safety program. Overall reduction in the operations of the MacMillan timber empire was 11 percent in logging camps, 33 percent in sawmills and 62 percent in plywood plants.

In the sawmill industry the frequency of accidents is decreasing. The rate for 1946 was 87 per million manhours worked, a decrease of 7 over the 1945 rate.

Severity of the accidents in the industry increased, however, from 6.22 to 4.65, "due to the alarming increase in fatal accidents from 12 to 20, which is unexplainable and which it is hoped will decline in 1947," the spokesman said.

At the same time a sharp decline in accidents was reported at the Ocean Falls plant of Pacific Mills Ltd., where the accident rate was reduced 60 percent or 11 accidents for every million hours worked; a total of 1300 persons are employed at this pulp and paper plant.

Commenting on this abnormal achievement in accident reduction in British Columbia, officials of the Safety Branch of the Department of Labor state that a great deal of publicity has been given to the accident record of British Columbia's lumber industry.

They state that unfortunately much of the criticism has been justified, but that unfortunately it has been made to appear that the employer has been responsible for a great number of the accidents which have occurred in the industry. Safety Department officials state that this is emphatically not the case and point out that high authorities on accident prevention have repeatedly stressed the fact that 90 percent of all accidents are caused by human failure.

Employers, it is claimed by Safety officials, are vitally interested in accident prevention because the rising frequency of accidents is costing him a greater and greater amount in compensation charges. The employee is, naturally, vitally interested in accident prevention because it means his continuous ability to succeed in his chosen field of endeavor, and in many cases an accident means life long suffering and disability.

In British Columbia the Safety Department of the provincial Department of Labor has for several years concentrated all its attention on an educational program which would bring together the vital interests of employer and employee. It has pointed out to Safety committees throughout the entire province that their greatest work should be the constructive criticism of the plant employees. The mechanical hazards should not be overlooked but a greater amount of attention should be brought to bear on the neglect of proper work methods by all the workmen. It has been pointed out on many occasions that key men should be charged with more responsibility and that managers should express their personal concern with accident prevention problems.

In the fall of 1945 H. R. MacMillan, head of MacMillan Industries Ltd., decided that more definite steps should be taken to prevent accidents than merely to complain about them. A thorough study was made of the hazards inherent in the lumbering industry and a survey was made among those plants where accident prevention had been successful. A safety director was engaged in the person of Jack Prescott and the management of the associated companies of H. R. MacMillan decided to make a concerted drive to reduce accident frequency. The result has been that while the industry in general has suffered an increase in accident this group of companies had made a tremendous reduction.

It is very gratifying to note that not one of the associated companies of H. R. MacMillan Export Company suffered an increase in accident frequency during 1946. To maintain a static frequency equal to the previous year would have been a success but this was not satisfactory to Mr. MacMillan. In his customary manner he had asked for concrete evidence and he got the support that he demanded.

The Alberni Plywoods Limited, managed by H. D. Dagg, made the greatest decrease when a survey at the end of the year conducted by the Safety Branch of the Department of Labor showed that this company had reduced its accident frequency by 86 percent. The Alberni Pacific Lumber Company, a sawmill managed by R. Pendleton, was second with an accident reduction of 71 percent, and the Alberni Pacific logging operation, also managed by R. Pendleton was third with an accident reduction of 57 percent. The other companies of this group made similar gratifying reductions, all of which proved definitely that accidents can be prevented if the work of preventing them is placed in competent hands backed by the necessary management and executive support.

The records made by these companies are not records for British Columbia alone. They have been recognized as outstanding on this continent, and on May 3 at Port Alberni the National Safety Council of Chicago made two presentations of the Distinguished Service to Safety Award, which is emblematic of international leadership in accident prevention, to Alberni Plywoods Limited and Alberni Pacific Lumber Company Limited.

Management of the companies referred to have done practically everything possible to encourage accident prevention. The employes have given complete and entire support to the drive. Mr. Prescott, the Safety Director, had publicly stated that the success would never have been attained and the awards would never have been granted had it not been for the complete co-operation of the management, the employes, the unions, and the government, all working toward the same end: the elimination of accidents.

In commenting on the achievements of the MacMillan companies, Mr. Prescott, Safety Director, states: "The reasons for undertaking this intensive accident prevention campaign are too obvious for comment. Our experience in the past was not good—possibly average—and everything pointed to an increasing continuation of accidents if immediate action was not taken. In fact the accident trend of the lumber industry in B. C. bears this out. During 1946 figures released by the Workmen's Compensation Board confirmed that the accident experience had increased 20 to 25 percent.

"It was first essential that we convince every employe that management was sincere in their efforts to reduce accidents, but that management alone could not do this. They must have the absolute co-operation of every employe. We had to convince the employes that management was prepared to spend money to make conditions and equipment as safe as humanly possible. This, we feel, has been done.

"At the start of this campaign our Safety Committees were groups of employes equally appointed by management and by the employes. However, with approval of the Union, we included in our Safety Committees our supervisory staffs, superintendents and foremen, and at all meetings the manager of the operation was in attendance. Under the original set-up there was something definitely lacking, possibly decision, clear direction and quick action. This new committee arrangement definitely met the need and today our Safety Committees are a very important part of all operations.

The next features are, first education and, second, stimulation and maintenance of interest. As to education, we have carried out very extensive job safety training classes which have included a large percentage of the employes, and we are continuing this training. Also, we have carried on and still are carrying on classes in Industrial First Aid. A great number of employes have, and are, securing first aid certificates.

We have to a considerable extent adopted the use of color code to highlight moving equipment and irremovable hazards.

(Continued on page 40)

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IMPORTS

NEW YORK IMPORTS

WEEK ENDING JULY 19, 1947
SUMMARY

Newsprint	3498 rolls
Wallpaper	112 pkgs.
Filter Paper	21 cs.
Photo Paper	3 cs.
Glass Paper	4 cs.
Straw Paper	87 rolls
Miscellaneous Paper	69 rolls, 1 cs.

NEWSPRINT

R. A. Olsen, Inc., Newscarrier, Donnacona, 374 rolls.

International Paper Co., International No. 1, Gatineau, 302 rolls.

R. A. Olsen, Inc., G.T.D., Donnacona, 359 rolls.

N. Y. Sun, Stuart Prince, Cornerbrook, 50 rolls.

N. Y. World Telegram, Stuart Prince, Cornerbrook, 1605 rolls.

Clinton Paper Co., Stuart Prince, Cornerbrook, 808 rolls.

WALLPAPER

Hudson Shipping Co., Koloa Victory, Havre, 112 pkgs.

FILTER PAPER

J. E. Bernard Co., Koloa Victory, Bordeaux, 21 cs.

PHOTO PAPER

J. J. Gavin Co., Queen Elizabeth, Southampton, 3 cs.

GLASS PAPER

J. Stern, Manderson Victory, London, 4 cs.

STRAW PAPER

Joe Salwen Paper Products Corp., Noordam, Rotterdam, 87 rolls.

MISCELLANEOUS PAPER

China American Paper & Pulp Co., Midland Victory, Antwerp, 69 rolls.

Universal Transport Corp., Saginaw Victory, Antwerp, 1 cs.

RAGS, BAGGINGS, ETC.

Castle & Overton, Inc., Marine Leopard, Bombay, 100 bls. old jute rags.

E. J. Keller Co., Inc., Marine Leopard, Bombay, 100 bls. old jute rags.

New England Waste Co., Marine Leopard, Shanghai, 200 bls. cotton waste.

Castle & Overton, Inc., Marine Leopard, Alexandria, 67 bls. new cotton rags.

Irving Trust Co., Marine Leopard, Alexandria, 136 bls. hessian rags.

Tradesmans National Bank Trust Co., Manderson Victory, London, 63 bls. old webbing.

Amtorg Trading Corp., Marshall Govorov, Leningrad, 8562 bls. cotton linters.

Manufacturers Trust Co., Meredian Victory, Genoa, 57 bls. bagging.

E. J. Keller Co., Inc., Pres. Monroe, Alexandria, 147 bls. old bagging; 158 bls. new hessian rags.

Irving Trust Co., Pres. Monroe, Alexandria, 211 bls. light hessian bagging.

Continental Bank Trust Co., Pres. Monroe, Alexandria, 121 bls. old hessian tares.

E. J. Keller Co., Inc., Pres. Monroe, Naples, 149 bls. dark cotton rags.

OLD ROPE

(———), Steel Maker, Calcutta, 1173 bls. old hemp rope cuttings.

(———), Trevose, Calcutta, 215 bls. old hemp rope cuttings.

CHINA CLAY

English China Clays Sales Corp., New York City, Bristol, 940 bags.

GLUESTOCK, ETC.

H. Remis, Mormacowl, Rio de Janeiro, 439 bls. gluestock.

H. Remis, Santa Clara, Barranquilla, 1398 bdls. dry hide cuttings.

WOODPULP BOARDS

(———), Cable Eye, Tampico, 220 rolls.

ALBANY IMPORTS

WEEK ENDING JULY 19, 1947

Elof Hansson, Inc., Gella, Utansjo, 12,000 bls. unbleached sulphite pulp.

BOSTON IMPORTS

WEEK ENDING JULY 19, 1947

Bulkley Dunton Pulp Co., Bokefors, Malmo, 3250 bls. prime bleached sulphate pulp; 375 bls. prime bleached sulphite pulp; 125 bls. 2nd qual. bleached sulphite pulp.

Gottesman & Co., Inc., Bokefors, Malmo, 750 bls. unbleached strong sulphate pulp; 250 bls. prime bleached sulphate pulp; 250 bls. prime bleached sulphite pulp.

Stora Kopparberg Corp., Bokefors, Malmo, 2486 bls. dry mechanical pulp; 2400 bls. kraft sulphate pulp.

Castle & Overton, Inc., Bokefors, Malmo, 699 bls. sulphite viscose pulp.

Pulp Sales Corp., Samuel R. Aitken, Helsingfors, 2510 bls. unbleached kraft sulphate pulp.

Pulp Sales Corp., Samuel R. Aitken, Abo, 17,339 bls. unbleached sulphite pulp.

Perkins Goodwin & Co., Gella, Hernosand, 6000 bls. dry sulphite pulp; 15,570 bls. dry sulphate pulp.

Elof Hansson, Inc., Gella, Utansjo, 9600 bls. unbleached sulphite pulp.

PHILADELPHIA IMPORTS

WEEK ENDING JULY 19, 1947

Castle & Overton, Inc., Toronto, Drammen, 2540 bls. moist mechanical pulp; 750 bls. dry chemical pulp.

Castle & Overton, Inc., Bokefors, Iggesund, 418, bls. dry bleached sulphite pulp.

Cellulose Sales Corp., Bokefors, Ursviken, 1500 bls. kraft sulphate pulp.

Stora Kopparberg Corp., Bokefors, Ursviken, 3000 bls. dry mechanical pulp.

Perkins Goodwin & Co., Bokefors, Ohrviken, 8016 bls. dry chemical pulp.

Elof Hansson, Inc., Christolline, Utansjo, 19,800 bls. unbleached sulphite pulp.

Elof Hansson, Inc., Christolline, Sandviken, 6000 bls. unbleached kraft pulp.

BALTIMORE IMPORTS

WEEK ENDING JULY 19, 1947

Castle & Overton, Inc., Toronto, Drammen, 500 bls. dry chemical pulp.

The Borregaard Co., Inc., Toronto, Drammen, 360 bls. air dry strong kraft pulp.

Castle & Overton, Inc., Toronto, Tpfte, 1350 bls. dry bleached sulphite pulp.

Elof Hansson, Inc., Mormacmail, Gothenburg, 1000 bls. easy bleaching sulphate.

Woodpulp Imports Rose in June

WASHINGTON, D. C. — Imports of wood pulp into the United States from all sources totaled 216,677 short tons in June 1947 as compared with 150,216 tons in June 1946, the Department of Commerce reported this week. Canada ranked as the principal supplier in June of both years, according to the Forest Products Division, Office of International Trade. Imports from Canada in June 1947 totaled 128,061 tons, an increase of 28,305 tons over June 1946.

Imports from Sweden in June 1947 were 55,941 tons, or 12,656 tons more than in June of last year. Pulp imports from Finland amounted to 29,290 tons in June, while a year ago 6,506 tons were received. No pulp was received from Norway in June of either this year or last. However, 3,098 tons of wood pulp were received from Russia during June 1947.

Of total imports of all grades in June, 17,292 tons were of rayon and special chemical grades of bleached sulphite, and the balance, 199,385 tons, was paper grade pulp.

United States consumption of imported pulp by paper mills in recent months averaged around 150,000 tons a month.

For Fastenings that LAST...

For fastenings that *last*, think of Monel* first! Monel fastenings have all the properties you need for dependable nails, screws, rivets, nuts, bolts, pins, washers, etc. *Test their performance for yourself.* Just let us know the type and size you need. We'll have your nearest distributor send samples to see how Monel can solve your own problem.

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Use them outdoors, in water or underground. You'll always get the same dependable service. They'll never rust . . . never "freeze" in position . . . never cause ugly rust streaks.

CORROSION

Monel fastenings resist salt water, corrosive atmospheres, caustics and most acids. Your equipment lasts longer; your products are safe from metallic contamination.

SHOCK

Stronger and tougher than brass, bronze or ordinary steel, Monel fastenings easily absorb shocks that would crack or break other fastenings.

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You can use plenty of "oomph" when you tighten Monel bolts. During assembly (and later in use) Monel's superior ductility prevents failures from overstressing.

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Upson Installs New Ross Drying System

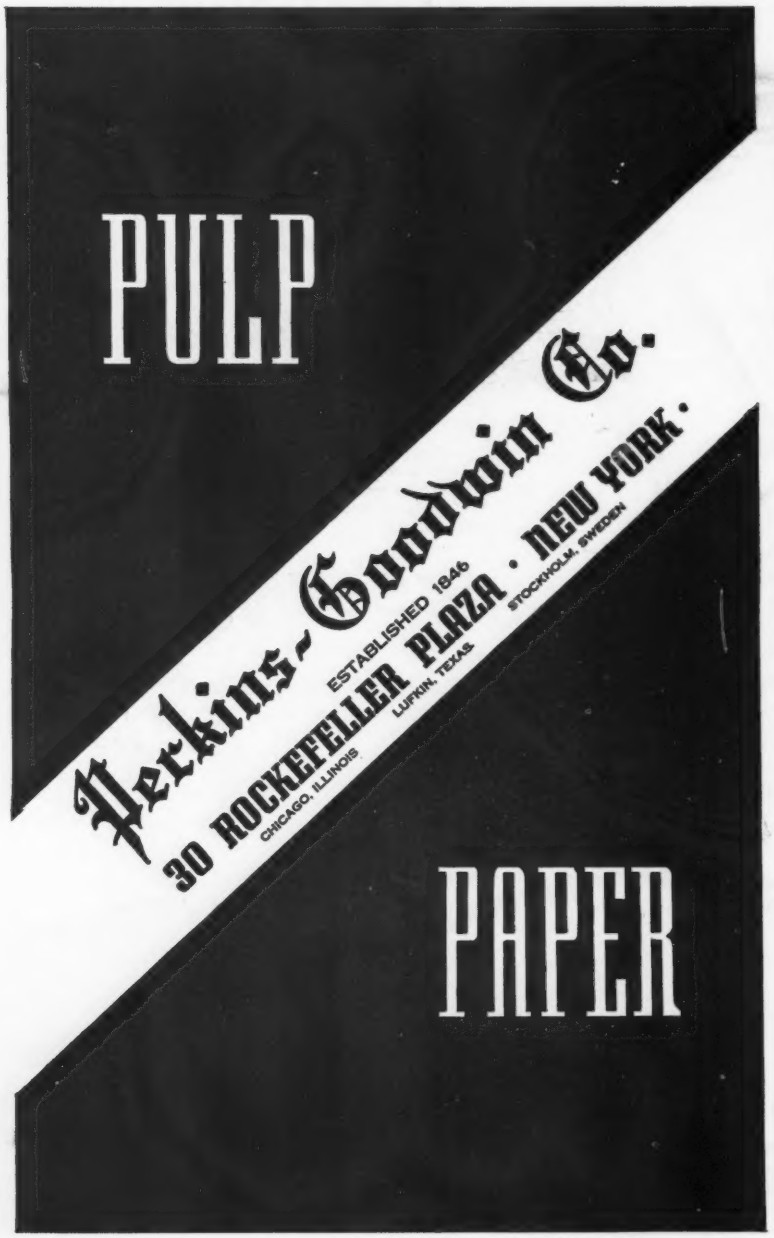
LOCKPORT, N. Y.—Installation of a new Ross drying system in the board mill at the Upson Company's plant in Lockport is to be completed about September 1, according to R. J. Farley, vice-president in charge of manufacturing. Better control of drying, through the installation of the latest type of dryer hood, is expected to improve the quality of the company's products, Mr. Farley said.

This hood—about 150 feet long, 14 feet wide and weighing 40 tons—is now being installed over the dozens of dryers in the mill.

Warm air collected under this hood will be exhausted by six large fans, now being installed in a new building adjacent to the mill, and will be utilized for processing purposes.

Through main air ducts leading in from the roof—large enough to drive a jeep through—these fans will deliver 300,000 cubic feet of fresh air to ventilate the plant in warm weather and, in winter, to help heat the mill after passing through heat exchangers, according to Mr. Farley.

The Upson Company manufactures fibreboard wall and ceiling panels, and fibreboard specialties.



New Contract Stops Strike at B-F-D Mill

OGDENSBURG, N. Y. — Negotiations have been completed and the contract signed between the Berts-Forster-Dixfield company and local 211, Pulp, Sulphite and Paper workers union, A. F. L., after the union employes had agreed to the terms offered in the new contract by the company.

Under the new contract employes will receive a ten cent raise in base pay, making the base wage rate 85 cents per hour; three to five cents shift differential; time and a half for Sundays; time and one-half for six holidays if worked and other minor adjustments.

Felix Spooner, president of the local; Floyd O. Van Deusen, union representative, and Donald A. Hunter, manager of the Ogdensburg plant of the B. F. D. Company, were among those attending the meeting.

Acceptance of the contract terms forestalled a strike at the company which would have involved about 280 employes had it gone through as scheduled.

At a special meeting of union employes a strike vote was taken and the two-thirds majority necessary to pass the vote was not reached—forcing the union to thereby accept the company's offer.

The union had originally demanded 25 cents per hour base rate increase plus adjustments, and later 18 cents per hour plus adjustments.

Sweden Agrees to Ease Its Import Restrictions

WASHINGTON — Swedish import restrictions are expected to be eased appreciably under an agreement between that country and the United States, the terms of which were made public late in June by the State Department. The restrictions, imposed by Sweden in March of this year, were the object of a State Department protest charging discrimination against the United States in favor of Russia.

Sweden, under the agreement, will determine the quantities of restricted commodities for which licenses will be granted. The Swedish Government also has agreed not to exclude entirely any commodity or class of commodities previously imported from the United States and it will undertake not to remove commodities from the unrestricted list without providing equitable transitional arrangements.

The United States, under the new agreement, has recognized Sweden's claim that the restrictions were imposed because of a serious reduction in Sweden's reserves of gold and foreign exchange. It also agrees not to invoke the provisions of Article II of the 1935 treaty outlining discrimination and Article VII, through which either country may abrogate the treaty within a specified time on discrimination grounds.

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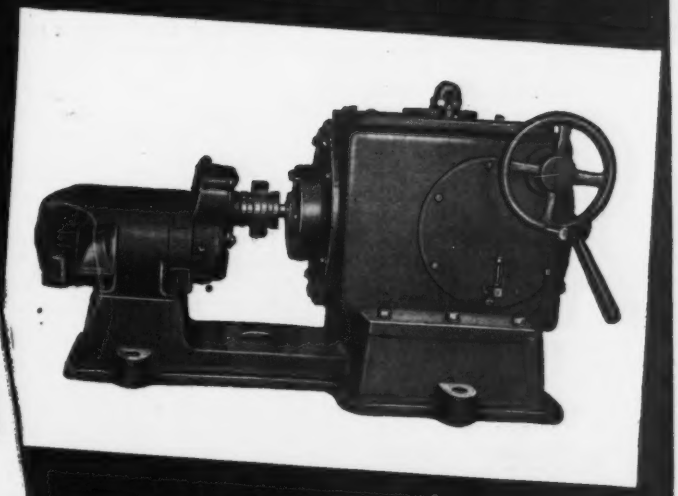


Sandy Hill BERTRAMS SHAKE

Here it is! The complete unit, a Sandy Hill improvement on the basic Bertrams design! The drive consists of an AC motor that drives a DC generator providing the required power. Sandy Hill, the only U. S. manufacturer licensed directly by Bertrams, Ltd. of Edinburgh, has access to all improvements developed by Bertrams.

Designed for FULL HARMONIC MOTION, the Sandy Hill Bertrams Shake has proven its worth in scores of paper mill installations! Completely flexible through a wide range of speeds and length of stroke. Minute adjustments *while machine is in operation* provide control of paper formation never before possible. No more shutting down of the shake for length of stroke adjustment.

THE SANDY HILL IRON & BRASS WORKS
HUDSON FALLS, N. Y.

TRENDS

Office of the PAPER TRADE JOURNAL,
Wednesday, July 23, 1947.

Demand for paper and paperboard remains well ahead of production which reached 1,834,389 tons in May, a new high for the year. A seller's market still exists in the paper and board field despite trade talk of a drop in corrugated paper carton prices. While a buyer's market is said to be rampant in the corrugated paper carton field, with prices down 10 to 15 percent, the fact is that some plants have abundant supplies and are anxious to move their inventories which may be offered at lower than prevailing market prices. This condition is only temporary and effects very few plants with none of these plants making their position known to the public. Generally, conditions in the paper and board market are unchanged, supplies are tight, prices are firm and prospects are good for a steady market for the rest of 1947. Reports from the Department of Commerce indicate mills are running full time throughout the country, although those operating with purchased pulp are still handicapped by the shortage of this raw material. The increase in production of paper and board in the past few months is attributed to an increase in machine capacity as well as increased productivity in the industry as a whole. Current increases in production are due in large part to installations of equipment ordered since the end of the war. So long as demand justifies it, this trend can be expected to continue.

The index of general business activity for the week ended July 12 declined to 130.5 from 134.2 in the previous week, compared with 131.6 for the corresponding week in 1946. The index of paperboard production dropped to 147.8 from 168.8 in the preceding week, compared with 156.1 for the corresponding week in 1946.

Paper production for the week ended July 12 was estimated at 92.3 percent, compared with 62.7 for the preceding week, with 95.2 for the corresponding week in 1946, with 88.5 for 1945, with 87.7 for 1944, and with 90.2 percent for the corresponding week in 1943.

Paperboard production for the week ended July 12 was 76.0 percent of capacity, compared with 78.0 percent for the preceding week, with 87.0 percent for the corresponding week in 1946, with 90.0 for 1945, with 91.0 for 1944, and with 91.0 percent for the corresponding week in 1943.

A mixture of pulp from Canada, consisting of 50 percent sulphite and 50 percent groundwood, is under question as to its dutiability according to Warren B. Bullock, manager of the Import Committee of the American Paper Industry. The Committee believes that such a product is a manufacture of pulp and dutiable, and not duty free as the pulp of commerce. The sheets were not mutilated upon importation. . . . Flax waste for paper making is believed by the Import Committee to be duty free as paper stock, not dutiable as flax waste. . . . Paper imported from France at San Francisco is under scrutiny, for the determination of its classification. It may be dutiable as starch coated paper at 5 cents per pound and 15 percent, or as vegetable parchment at 2 cents per pound and 10 percent. The Import Committee has asked the assistance of domestic manufacturers in determining the true character of the paper. . . . Paper described as coated paper, shipped from Scotland for cigarette tipping, has been classified as cork paper at 30 percent. . . . A Philadelphia bag manufacturer has been granted a refund of 99 percent of the duty paid on paper imported from Scandinavia and reexported in bag form. . . . Pacific Coast importers of asphalt duplex paper have abandoned their protests against the rate of duty levied by Customs officials. The material has been claimed to be dutiable at 10 percent as sheathing paper, but was classified for duty at high rates for sulphite and kraft wrapping paper. Three of the cases, which have been pending in United States Customs Court since before the war, were at Los Angeles, three at Tacoma and thirteen at San Francisco.

William C. Foster, Under-Secretary of Commerce, reports that the Federal Government has no authority to allocate newsprint to either large or small publishers. Such directives during the period of wartime were within the province of the War Production Board, but this authority has since been revoked. Meanwhile, Foster reports that about 72,000 short tons of Finnish newsprint has been earmarked for shipment to the United States in 1947, compared with 13,000 tons in 1946, as a result of a $20,000,000 loan to Finland by the Export-Import Bank. . . . A total of 1,720,637 tons of newsprint was used during the first six months of 1947 by daily newspapers reporting to the American Newspaper Publishers Association, which is an increase of 15.3 percent over the same period a year ago. . . . Estimated total consumption in the United States, including all kinds of uses of newsprint, was 2,357,037 tons for the first six months of 1947. . . . Reports continue to come in that some United States newspaper publishers are paying sky-high prices for newsprint in an international market stretching from New York to the Orient. Indications are that newsprint from Sweden, Canada, France and Poland is being offered and sold in the open market at $200 a ton and up. One publisher is said to have paid $290 a ton. Publishers of metropolitan dailies as well as small-town papers are said to be paying fancy prices to pad out dangerously low supplies. This "gray-market," however, is very small and involves "fly-by-night" dealers who do not expect to sell newsprint once the demand falls off. Contract prices are steady with all reliable sources continuing to quote $91 a ton delivered in New York.

Wood Pulp

Production of domestic wood pulp at 1,048,501 tons in May was 59,159 tons above the April figure, and 30,984 tons over the previous high set in March 1947, according to reports from the Department of Commerce. Consumption of wood pulp in the manufacture of paper and paperboard during the month, at 1,144,609 tons, was 50,395 tons above the corresponding figure for April, and 16,777 tons over the record set in March.

Despite the continued high rate of wood pulp consumption, a sharp increase in the receipts of wood pulp at paper and paperboard mills resulted in an increase of 6,425 tons in the month-end inventories of wood pulp at paper and paperboard mills, reversing the seasonal trend of the past three months. Month-end inventories at pulp mills amounted to 96,338 tons, an increase of 11,160 over the corresponding April figure.

Rags

Paper mills are slowly taking up rags now that they have resumed operations after their mid-year shutdowns. The market is the same as it was before the holiday period with sales and offering at the same price levels. New domestic cotton cuttings still have as their feature white shirt cuttings at $11.50 to $12 per 100 pounds f.o.b. New York. Light percales are still around $5.50 to $6 and blue overalls about $7.75.

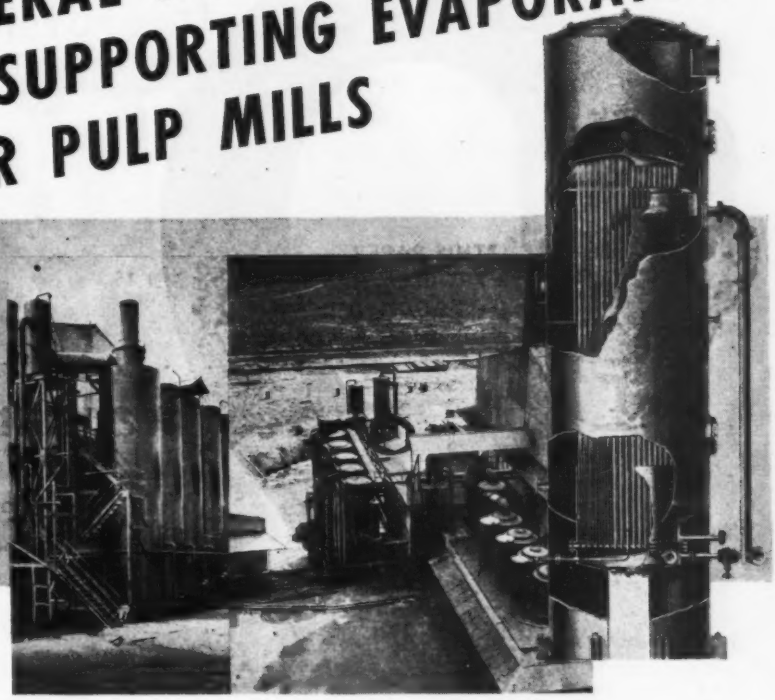
Old Rope and Bagging

Little activity is noted in paper mill demand for old rope at present. Demand is expected to pick up as the mills speed up operations after their holiday layoff. Some offerings and sales were made, however, at prevailing price levels. Domestic Manila is still $5.75 to $6.50 per 100 pounds f.o.b. New York with sisal about 50 cents less.

Market for bagging is still too quiet to say that recent low prices are indicative of a general trend. But recent offerings of No. 1 domestic gunny were reported slightly under the $4.25 mark, and light wool tares were said to be going at less than the prevailing $4.50 level f.o.b. New York.

THE NEW GENERAL AMERICAN CONKEY SELF-SUPPORTING EVAPORATOR FOR PULP MILLS

This modern type evaporator (patents applied for) is functionally identical with its predecessor, The Conkey Long Tube Vertical Evaporator. The new and old types are alike as to internal proportioning and they operate and produce no differently, but the new has greater accessibility.



This modern type evaporator provides the following advantages over conventional evaporator construction:

1. Lower Installed Cost –

a. No structural supports required.

b. Low erection costs due to unit effect. (Vapor body, heating element and entrainment separator shipped completely assembled.)

c. Less floor space required.

d. Climate permitting, may be set out of doors.

2. Operating Advantages –

a. Lower steam-vapor pressure drop losses.

b. Fewer points for vacuum leakage.

c. Real accessibility to outside tube areas for cleaning.

d. Lower maintenance due to unit construction and absence of structural steel supports.

Evaporators of this construction are widely used for concentrating wood pulp spent liquors for recovery of their solid contents.

Other General American Equipment for Pulp and Paper Mills

Digesters	Blow Tanks
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"THIS PAPER PROBLEM HAS US BOGGED DOWN."

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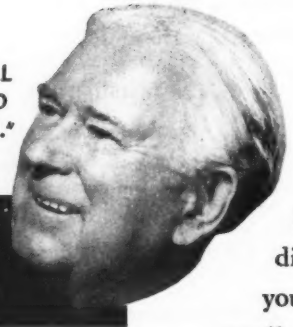

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Getting together with Stein-Hall on a paper production problem has saved time-and-money for many a paper plant. You can do the same. Just ask—and all the technical experience of your near-by Stein-Hall salesman—plus the services of our complete laboratories—will be placed willingly at your command. We are anxious as you to see you get the most out of Stein-Hall products. So whenever any difficulty or special requirement in your production comes up—large or small—don't let it get you down. Call in Stein-Hall right away.

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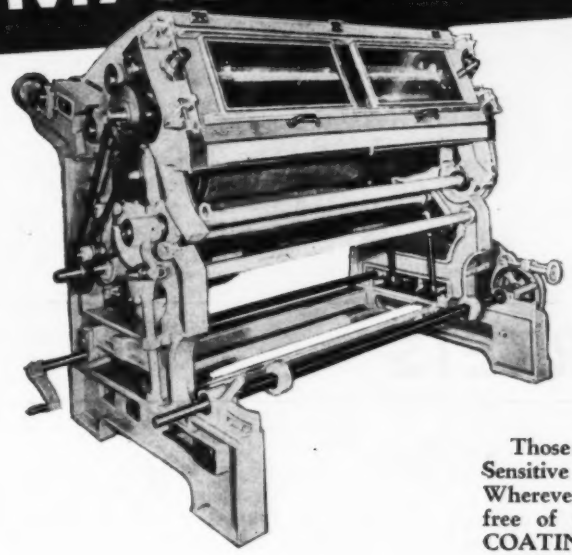
Part of the picture of famous products

WALDRON *Processing* MACHINES



Waldron Reverse Roll Coater for operation at speeds up to 300 ft. per minute on lacquer type coating materials, higher for other types. One of many Waldron Coating Machines.

Those welcome successors to glue or string—Pressure Sensitive Tapes—are examples of surface coating at its best. Wherever the coating must be of a uniform thickness, smooth, free of wrinkles, ribs or graining patterns, WALDRON COATING MACHINES are a "must". The model illustrated applies a uniform coating within a tolerance of not more than .0001" to .0002" and embodies the most advanced refinements in design and construction to assure pre-metered application of coating material and constant reliable production.

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Pile Fabrics . . . . Carpet . . . . Paper
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Coating Machines
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Waste Paper

Regional reports from the Department of Commerce indicate conditions approaching over-supply in several specific areas. In the Chicago district, mills recently reported offerings of waste paper in excess of their immediate requirements. In the region of which New Orleans is the center, an over-abundance of waste paper is reported with resultant depressed prices.

This unpredictable heavy flow to the markets has been predominantly in the lower or bulky grades, for which prices have suffered a decided decline in virtually all of the principal collection centers. The market for the higher grades has remained relatively steady although some moderate price set-backs have also been noted.

Harry Epstein Patents New Paper Tube Process

BOSTON — Harry T. Epstein, of the Paper Products Company, mill distributors, has been allowed a patent on a new process of manufacture of paper tubes of various sizes, including straws for drinks. He intends to go into production within six months in a plant somewhere in greater Boston. The first machine is nearly completed.

The company's field has been expanded to include the entire eastern seacoast east of the Mississippi to the Atlantic Ocean. Three new salesmen are to be added. The office staff has been increased with Miss Rhoda Epstein as advertising manager; Miss Marilyn Goldman, head bookkeeper; and Miss Barbara Tevman, office secretary.

British Columbia Sets Low Accident Rate

(Continued from page 28)

In order to stimulate and maintain interest we have adopted the use of accident score boards, dividing the operations into sections or groups by foremen or supervisors. These boards show the number of lost time accidents and days lost for the current month and also for the current year to date. These boards have been watched very closely by the crews and have been a great aid in reducing accidents and maintaining interest.

We have set up at each operation Safety Pools or sweeps. The company puts up a sum of money each quarter on the basis of a $1.00 per man. An operation with 500 men would have a $500 pool each three months. If, in the corresponding quarter of the previous year, there were ten accidents the deduction would be based at $50.00 per accident. The previous year's experience must be improved to have money left in the Pool at the end of each quarter. This remaining money is drawn for at the end of the term with individual prizes not exceeding $25, to secure widest possible distribution.

We have also instituted what we term Award Visits. Each six months two employes are chosen from each operation and sent on a visit with pay and expenses to other operations within our group. These employes are chosen for outstanding interest and promotion of safety at their own operation. The purpose of these visits is to see what safety measures are in effect at other operations, and also to become acquainted with other phases of activity in our group of companies.

The result of this program in the past year has reflected reductions at individual operations ranging in improvements of from ten percent to 86 percent in both frequency and severity. In 1946 we had approximately 400 more employes than in 1945 and also an increased number of hours of exposure.

We are under no illusions about our Safety program. We know that our accident problem is not solved. We know that accidents will happen in the future. We are, nonetheless, confident in the belief that we have, to some extent, controlled accidents. We believe further that if we continue to keep on top of the job in future, as during 1946, our accident experience will not return to its previous level.

We are hopeful that our efforts will lend encouragement to all operators in the lumber industry, and we feel confident that our attainments of the past year can be surpassed.

MARKETS

BLANC FIXE—Supplies adequate to meet steady demand, deliveries fair. Pulp is currently quoted at $55 per ton, in barrels, car lots, at works; and $60 less car lot same basis.

BLEACHING POWDER—Supplies tight although paper mill demand has eased up. Shipments improved. Quotations are unchanged. Prices on bleaching powder range from $3.00 to $3.75 per 100 pounds.

CASEIN—Current prices on processed acid precipitated casein are quoted around 24 to 26 cents per pound for domestic grades and 28 to 32 cents for imported grades f.o.b. shipping point.

CAUSTIC SODA—Market continues tight, relief expected as new production arrives. Solid caustic soda is reported at $2.50 to $2.75 per 100 pounds; flaked and ground offered at $2.90 to $3 per 100 pounds, car lots, at works.

CHINA CLAY—Heavy demand continues, supply tight. Domestic filler clay is currently $9 to $11 per ton, car lots. Coating clay is currently $15 to $30 car lots. Imported clay is currently quoted at from $18 to $35 per ton, in car lots, export warehouse.

CHLORINE—Strong demand continues in a tight market. Lack of tank cars continues to hamper deliveries. Quantities unchanged. Chlorine is currently quoted at $2 to $3.50 per 100 pounds.

ROSIN—Gum Rosin in drums per 100 pounds, net, in yard New York, car lots, B, D, E, $8.85; F, G, H, I, K, M, $9.01; N, $9.05; WG, $9.06; WW, $9.25. Wood Rosin per 100 pounds, l.c.l., f.o.b. N. Y., B, $6.95; FF, $8.20; G, H, I, $8.35; WG, $8.65; WW, $8.81; X, $8.91.

SALT CAKE—Demand continues to increase as supply shows little improvement. Prices remain unchanged. Domestic salt cake is quoted at $20 to $26 per ton in bulk. Chrome salt cake is quoted at $20 to $26 per ton.

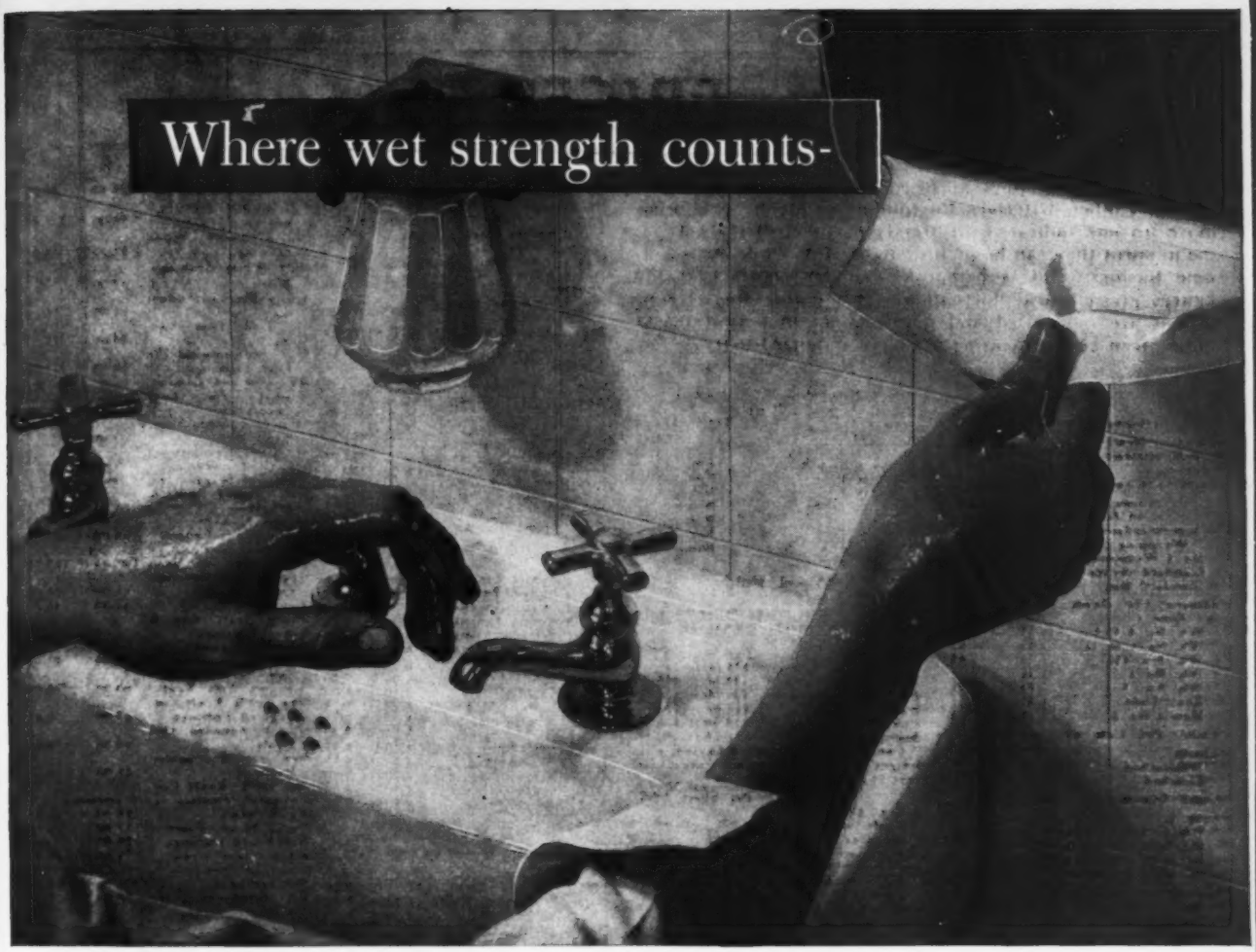
SODA ASH—Demand active as supplies continue short, previous orders filled. Contract orders prevail at the same high levels. Current prices, car lots, per 100 pounds, are as follows: in bulk, $1.08; in paper bags, $1.20; and in barrels, $1.60.

STARCH—Capacity production absorbed by active demand, export demand eased up. Starch prices continue strong with the pearl grade quoted at $5.92 per 100 pounds; powdered starch at $6.03 per 100 pounds, car lots, Chicago.

SULPHATE OF ALUMINA — Active demand covered by fair supplies. Quotations continue unchanged. The commercial grades are quoted at from $1.15 to $1.30 per 100 pounds, in bags, car lots, f.o.b. works. Iron free is quoted at $1.95 to $2.25 per 100 pounds, in bags at works.

SULPHUR—Plentiful supplies to meet active domestic and export demands. Annual contracts are quoted at $18 per long ton, f.o.b. mines; the price f.o.b. at Gulf Ports is $19.50 per long ton.

TALC—Domestic and French grades are moving in fair volume with prices steady. Domestic grades are currently quoted at from $16 to $30 per ton at mines: Canadian at $35 to $45 per ton. All prices in car lots.



–count on UFORMITES 467 and 470 for an effective, economical job

In paper toweling—and wherever wet strength is of prime importance—UFORMITE 467 and UFORMITE 470 are especially valuable. These urea formaldehyde resins increase wet strength substantially . . . and do it efficiently and economically.

UFORMITE 467 is particularly designed for use with Kraft by beater addition. UFORMITE 470 is recommended especially for sulfite stocks, can also be used advantageously with Kraft, rag and groundwood stocks, in the manufacture of high wet strength glassine, wrapping paper, chart and ledger paper or light weight absorbent tissues.

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And UFORMITES 467 and 470 do more than give you higher wet strength—they improve dry tensile and Mullen, fold, uniformity of sizing, and coating surface characteristics. Why not look into the many benefits resulting from these resins? We will be glad to send full details on request.

UFORMITE *is a trade-mark, Reg. U. S. Pat. Off.*

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THE RESINOUS PRODUCTS & CHEMICAL COMPANY

WASHINGTON SQUARE, PHILADELPHIA 5, PA.

PRICES

With the elimination of price controls on paper, pulp, rags and other materials, the quotations given below once more become indicative of trends in an open market. At the moment they can be of little more, for, while some volume business still is being done under contract at the figures given below, fluctuations representing special conditions are too varied and too frequent to permit prices to be given as representing a wholly stabilized market.

Paper

(Delivered New York)

Standard News, per ton—

Roll, contract	$90.00	to	—
Sheets	$109.00	"	—

Kraft—per cwt.—Carload Quantities

Zone A, Delivered
40 lb. base weight

Superstandard Wrapping	$7.00	to	—
No. 1 Wrapping	6.50	"	6.75
Standard Wrapping	6.00	"	6.25
Standard Bag	5.75	"	6.25

Tissues—Per Ream 24x36 (480) 10 lb. Zone 1.

Wh. No. 1 Frd.	1.35	to	1.65
Wh. No. 1 M. G.	1.35	"	1.65
Wh. No. 1½	1.20	"	1.45
Wh. No. 2	1.30	"	1.55
Wh. Anti-Tar	2.75	"	4.25
Kraft Unbl.	1.45	"	1.85
Manila No. 2	1.25	"	1.45

Toilet—Per Case of 100 rolls—1 M Sheets.

Unbleached	4.47	to	5.50
Bleached	6.50	"	—

Paper Towels—Per Case of 3750—Zone 1.

Wh. C. fold 11x13⅓	4.39	to	4.80
Br. Sgl. fold 10 in.	2.67	"	3.00
Br. M'tif'd 9½x14¾	3.78	"	4.15
Br. M'tif'd 9½x9¾	2.67	"	3.00

Manila—per cwt.—C. l. f. a.

No. 1 Jute	11.25	to	—
No. 1 Manila 35 lb.	6.00	"	7.00

Boards, per ton—

News	$92.50	"	—
Chip	90.00	"	—
Sgl. Mla. Ll Chip*	102.50	"	—
White Pat. Coated*	120.00	"	—
Kraft Liners 42 lb.	95.00	"	—
Binders Boards	126.00	"	—

* Base Prices per 10 tons. Less than 10 tons but over 3 tons, add $2.50; three tons or less, add $5; regular 35-39 basis, add $5; basis 40-49, add $2.50; basis 91-100, add $2.50; basis 101-120, add $5.

The following prices are representative of distributors' resale prices, all deliveries in Zone 1: Rag Content Bonds and Ledgers—

White, Assorted Items
Bonds, per cwt.

	Carton	4 C't'n	Ton
100% Rag Ext. No. 1	$55.00	$50.00	$48.00
100% Rag	46.50	43.00	41.25
75% Rag	35.00	32.50	31.50
50% Rag	31.50	28.75	27.50
25% Rag	28.00	25.50	24.50

Ledgers, per cwt.

100% Rag Ext. No. 1	$54.25	$50.00	$48.00
100% Rag	46.25	42.50	40.75
75% Rag	36.00	33.25	31.75
50% Rag	31.00	28.00	27.00
25% Rag	27.25	24.75	23.75

Sulphite Bonds and Ledgers—
White, Assorted Items
Bonds, per cwt.

No. 1	$18.75	$16.25	$15.50
No. 2	17.00	15.25	14.50
No. 4	16.00	14.50	14.00

Ledgers, per cwt.

No. 1	$17.00	$17.00	$16.35
No. 2	17.75	16.25	15.50
No. 4	17.00	15.00	14.25

Free Sheet Book Papers—
White, Cased Paper

(Per cwt.)	Case	Ton
No. 1 Glossy Coated	$19.40	$18.60
No. 2 Glossy Coated	18.15	17.35
No. 3 Glossy Coated	17.65	17.00

(Per cwt.)	Case	Ton
No. 1 Antique (Water marked)	$14.90	$14.25
No. 2 Offset	15.35	14.70
A Grade E. F.	13.90	13.30
A Grade S. & S. C.	14.40	13.70
B Grade E. F.	Nominal	
B Grade S. C.	Nominal	
C Grade E. F.	Nominal	
C Grade S. C.	Nominal	
D Grade E. F.	Nominal	
D Grade S. & S. C.	Nominal	

Wood Pulp

Domestic mill prices delivered with former OPA freight allowances.

	Per Short ADT
Groundwood	$75.00 to $80.00
Unbleached Sulphite	115.00 " 117.00
Bleached Sulphite	121.00 " 125.00
Bleached Soda	115.00 " 120.00
Unbleached Kraft	112.50 " 120.00
Southern Kraft	90.00 " 102.50

Canadian mill Prices delivered with freight allowances unless otherwise specified:

	Per Short ADT
Select Unbleached Kraft (no freight allowance)	115.00 " —
Unbleached Sulphite	115.00 " 117.00
Glassine Unbleached Sulphite (no freight allowance)	112.00 " —
Bleached Soda	105.00 " 115.00
Groundwood	75.00 " 80.00
Siderunas Pulping News	75.00 " 80.00
Hardwood and Specialty Grades	Nominal

Swedish Quotations
Ex. dock, New York

	Per Short ADT
Bleached Kraft	$150.00 to 156.00
Bleached Sulphite	151.00 " 158.50
Unbleached Sulphite	121.00 " 131.00
Unbleached Kraft	116.00 " 126.00

Finnish Quotations
Ex. dock, New York

	Per Short ADT
Bleached Sulphite	$165.00
Unbleached Sulphite	132.50
Unbleached Sulphite (special grade)	137.50
Unbleached Sulphate	132.50
Unbleached Sulphate (special grade)	159.00

New Domestic Cotton Cuttings

(Prices delivered Mill Plus Dealer's Commission)

White Shirt	$11.50 to		$12.00
Light Silesias	7.50		
Unbleached Muslin	11.50 "		12.00
White Back Blue Overalls	8.25		
Blue Overalls	7.75		
Unbl. Fancy Shirt	4.50 "		5.00
Light Percales	5.50 "		6.00
Light Prints	5.25 "		5.95
Washables	4.00		
Bleachable Khaki	5.50 "		6.00
Unbleachable Khaki	5.00 "		5.50
Cottonades	4.50 "		5.00

Old Domestic Cotton Rags

(F.O.B. Shipping Point Plus Dealer's Commission)

	Per 100 lbs.
No. 1 Whites Repacked	$5.00
No. 1 Whites Miscellaneous	4.25
No. 2 Whites Repacked	4.00
No. 2 Whites Miscellaneous	3.50
Blue Overalls	3.75
Thirds and Blues Repacked	3.00
Thirds and Blues Miscellaneous	2.50
No. 1 Roofing Rags	2.20
No. 2 Roofing Rags	2.10
No. 3 Jute Bagging	2.00
No. 4 Brussels and hard back carpets	2.00
No. 5A Roofing Rags	2.00

New Foreign Cotton Cuttings

(Prices delivered Mill)

	Per 100 lbs.		
New Dark Cuttings	$6.00	to	—
New Mixed Cuttings	6.50	"	—
Light Silesias	9.00	"	10.00
Light Flannelettes	8.00	"	9.00
New White Cuttings	13.00	"	15.00
Fancy Shirt Cuttings	9.00	"	10.00
Light Prints	8.00	"	10.00
Bleachable Khaki, No. 1	7.00	"	7.50
Unbl. Khaki, No. 1	6.25	"	6.75

Old Foreign Rags

(F.O.B. New York)

	Per 100 lbs.		
No. 1 White Linens	$14.00	to	16.00
No. 2 White Linens	12.00	"	13.00
No. 3 White Linens	8.00	"	9.00
No. 4 White Linens	8.00	"	9.00
No. 1 White Cottons	10.00	"	12.00
No. 2 White Cottons	8.00	"	9.00
No. 3 White Cottons	6.50	"	7.00
No. 4 White Cottons	5.00	"	5.50
Extra Light Prints	7.50	"	8.00
No. 1 New Light Prints	6.25	"	6.75
Med. Light Prints	5.25	"	5.75
Dutch Blue Cottons	5.25	"	5.50
Checks and Blues	4.00	"	4.25
Linsey Garments	3.00	"	3.75
Dark Cottons	2.50	"	3.00
Old Shopperies	2.50	"	3.00
New Shopperies	2.50	"	3.00

Bagging

(Prices to Mill, f.o.b. N. Y.)

	Per 100 lbs.		
Foreign Gunny, No. 1	$4.75	to	5.00
Domestic Gunny, No. 1	4.25	"	4.50
Light Wool Tares	4.50	"	4.75
Heavy Wool Tares	4.75	"	5.00
Bright Bagging	4.25	"	4.50
Foreign Manila Rope	6.00	"	7.00
Domestic Manila Rope	5.75	"	6.50
Jute Strings	4.50	"	5.00
No. 1 Sisal Strings	5.50	"	6.00
Mixed Strings	1.75	"	2.50

Waste Paper

Prices to Mills
(Dollars Per Ton)
F.o.b. New York, Baled

No. 1 Hard White Envelope Cuts, one cut	$100.00	@	$120.00
No. 1 Hard White Envelope Cuts	90.00	"	100.00
No. 1 Hard White Shavings, unruled	100.00	"	110.00
No. 1 Hard White Shavings, ruled	80.00	"	90.00
Soft White Shavings, one cut	95.00	"	105.00
No. 1 Soft White Shavings	85.00	"	95.00
Soft White Shavings, Misc.	65.00	"	75.00
No. 1 Fly Leaf Shavings	55.00	"	60.00
No. 2 Fly Leaf Shavings	50.00	"	55.00
No. 1 Groundwood Fly Leaf Shavings	30.00	"	33.00
No. 2 Mixed Groundwood Fly Leaf Shavings	(nominal)		
Mixed Colored Shavings	(nominal)		
Mixed Groundwood Colored Shavings	(nominal)		
Overissue Magazines	(nominal)		
No. 1 Heavy Books & Magazines	30.00	"	37.50
Mixed Books	15.00	"	20.00
No. 1 White Ledger	60.00	"	65.00
New Manila Envelope Cuttings, one cut	100.00	"	110.00
New Manila Envelope Cuttings	65.00	"	75.00
Extra Manilas	35.00	"	40.00
Mixed Kraft, Env. & Bag Cuttings	75.00	"	85.00
Kraft Envelope Cuttings	100.00	"	105.00
Triple Sorted, No. 1 Brown Soft Kraft	60.00	"	70.00
New 100% Kraft Corrugated Cuttings	60.00	"	70.00
No. 1 Assorted Old Kraft	40.00	"	50.00
New Jute Corrugated Cuttings	27.00	"	—
Old 100% Kraft Corrugated Containers.	(nominal)		
No. 1 News	19.00	"	20.00
No. 1 Mixed Paper	17.00	"	19.00
Box Board Cuttings	20.00	"	—
White Blank News	75.00	"	80.00
Overissue News	(nominal)		
Old Corrugated	28.00	"	30.00
Mill Wrappers	22.00	"	25.00

Twines

All Prices Nominal
(F. o. b. Mill)
(Soft Fiber)

Coarse Polished—India	.26	@	.29
Fine Polished—Fine India	.31	"	.35
Unpolished—Paper Makers	.20	"	.26
Tube Rope	.22	"	.27½
Wrapping	.26	"	.33½
Cotton	.70	"	—
(Hard Fiber)			
Mex. Sisal	.21	"	.24
Manila	.33	"	—
(Hemp)			
Polished Hemp	.63	"	—

PHILADELPHIA

Domestic Rags (New)

(F.O.B. Eastern Shipping Point)

Shirt Cuttings—New White No. 1	.10½	@	.11
New White No. 2	nominal		
Light Silesias	.07½	"	.08
Black Silesias, soft	.06½	"	.07
New Unbleached	.10½	"	.11¼
Washable Prints	.06½	"	.07
Washable No. 1	.05	"	.05½
Blue Overall	.07½	"	.08
Cottons—According to grades—Washable Shredding	.03½	"	.04
Fancy Percales	.06¾	"	.07¼
New Black Soft	nominal		
Khaki Cuttings—Unbleachable Cotton Cuttings	.05½	"	.06
Bleachable Cotton Cuttings	.06½	"	.07
Men's Corduroy	.05½	"	.06
Ladies' Corduroy	.05	"	.05½
Cottonades	.05½	"	.06

Domestic Rags (Old)

(F.O.B. Eastern Shipping Point)

White No. 1—Repacked	4.50	@	5.00
Mixed White	4.00	"	4.25
White No. 2—Repacked	3.50	"	3.75
Thirds and Blues—Miscellaneous	2.25	"	2.50
Repacked	2.75	"	3.00
Roofing Stock—Foreign No. 1	nominal		
Domestic No. 1	2.00	"	2.05
Domestic No. 2	1.90	"	1.95
Roofing Bagging	1.90	"	1.95
Old Manila Rope	5.75	"	6.00

Bagging

(F.O.B. Eastern Shipping Point)

Gunny No. 1—Foreign	nominal		
Domestic	4.25	@	4.50
No. 1 Clean Bright—Sisal Strings	.04	"	.04½
No. 2 Clean Bright—Sisal Strings	.03	"	.03½
Sisal Jute	.02¾	"	.03
Scrap—No. 1	3.25	"	3.50
No. 2	1.75	"	1.85

Now . . . a new polyvinyl material

GEON Paste Resin

NO HOT MILL MIXING NECESSARY; NO VOLATILES REQUIRED FOR MOST APPLICATIONS; NO PRESSURE NEEDED FOR MOLDING; CAN BE CAST OR DIPPED; NO SHRINKAGE OR INTERNAL STRAINS IN FINISHED PRODUCTS

GEON paste resin is a new raw material that closely approaches the ultimate in simplicity of compounding and fabrication.

Easy to Compound

Simply stir the resin, plasticizer, and pigments. After eliminating any trapped air the mixture is ready for fabrication into finished products. No solvents or other volatiles—no hot mill mixing (when used in making thin films or coatings it may be desirable to pulverize the resin).

Easy to Apply

Compounded GEON paste polymer is especially suitable for low pressure molding. Or it may be cast as sheet or film, or as coatings for fabrics, fibres, and papers. In other applications, a simple dipping process may be used. In all cases, the application of heat fuses the paste into a homogeneous vinyl plastic.

Many Outstanding Properties

Products made from or with GEON paste resin may have all the desirable properties of products made from GEON by other methods; resistance to oils, chemicals, abrasion, heat, cold, flexing, sunlight, aging, water, flame, and most other normally destructive factors. Products made from GEON paste resin may be brilliantly or delicately colored.

Write for Information

We will be glad to work with you on special problems or applications. Limited quantities of GEON paste resin are available for experimental purposes. For more information please write Department U-8, B. F. Goodrich Chemical Company, Rose Building, Cleveland 15, Ohio. In Canada: Kitchener, Ontario.

B. F. Goodrich Chemical Company

A DIVISION OF THE B. F. GOODRICH COMPANY

GEON polyvinyl materials • HYCAR American rubber • KRISTON thermosetting resins • GOOD-RITE chemicals

Wool Tares, heavy	4.00	"	4.25
New Burlap Cuttings	6.00	"	6.50

Old Papers

(F. o. b. Phila.)
Mill Prices, Baled

No. 1 Hard White Envelope Cuts, one cut	$100.00	@	$115.00
No. 1 Hard White Shavings, unruled	100.00	"	—
Soft White Shavings, one cut	90.00	"	95.00
White Blank News	60.00	"	65.00
Soft White Shavings	80.00	"	—
No. 1 White Ledger	75.00	"	80.00
Ledger, colored	60.00	"	65.00
No. 1 Heavy Books & Magazines	40.00	"	45.00
Overissue Magazines	nominal		
New Manila Envelope Cuttings	80.00	"	—
No. 1 Assorted Old Kraft	60.00	"	65.00
No. 1 Mixed Paper	20.00	"	—
Box Board Cuttings	20.00	"	—
Kraft Corrugated Cuttings	nominal		
Old Corrugated	30.00	"	35.00
Overissue News	40.00	"	—
No. 1 News	—	"	30.00

BOSTON

Old Papers

(F. o. b. Boston)
Mill Prices, Baled

No. 1 Hard White Shavings, unruled	7.00	@	8.00
No. 1 Hard White Shavings, ruled	7.00	"	8.00
Soft White Shavings, Misc.	6.25	"	6.50
No. 1 Fly Leaf Shavings	1.65	"	1.80
No. 2 Fly Leaf Shavings	2.00	"	—
No. 1 Groundwood Fly Leaf Shavings	1.25	"	—
No. 2 Groundwood Fly Leaf Shavings	1.25	"	1.50
Mixed Colored Shavings	2.50	"	2.75
New Manila Envelope Cuts, one cut	5.00	"	5.50
Hard White Envelope Cuts, one cut	3.37½	"	—
Triple Sorted No. 1 Brown Soft Kraft	3.50	"	3.75
Mixed Kraft Env. & Bag Cuttings	3.75	"	4.00
Kraft Envelope Cuttings	3.75	"	4.00
No. 1 Heavy Books & Magazines	2.50	"	2.60
New Manila Envelope Cuts, one cut	2.87½	"	—
New Manila Envelope Cuttings	2.65	"	—
White and Colored Tabulating Cards	4.25	"	4.50
Groundwood Tabulating Cards	1.35	"	—
White Blank News	1.65	"	—
No. 1 Assorted Old Kraft	3.50	"	—
No. 1 Mixed Paper	—	"	.95
Overissue News	1.50	"	1.75
Box Board Cuttings	.72½	"	—
New Corrugated Cuttings, Kraft	2.25	"	—
Old 100% Kraft Corrugated Containers	1.75	"	—
Old Corrugated Containers	1.50	"	—
Jute Corrugated Cuttings	1.07½	"	—
Paper Strings	2.25	"	2.50

Bagging

(F. o. b. Boston)

Gunny Bagging—			
Foreign	—	@	4.75
Domestic	—	"	4.75
Sisal Rope No. 1	6.00	"	—
Sisal Rope No. 2	5.50	"	—
Mixed Rope	5.25	"	—
Mixed Strings	2.00	"	2.50
Transmission Rope—			
Foreign	(nominal)		
Domestic	3.00	"	3.50
Manila Rope—			
Foreign	(nominal)		
Domestic	6.25	"	—
Soft Jute Rope	5.00	"	5.25
Jute Carpet Threads	6.00	"	—
Bleachery Burlap	8.50	"	9.00
Scrap Burlap—			
Foreign	—	"	4.75
Domestic	—	"	4.87½
South America	5.25	"	—
Wool Tares—			
Foreign	4.50	"	—
Domestic	4.50	"	—
Aust. Wool Pouches	5.00	"	5.25
New Zealand Wool Pouches	5.25	"	5.50
New Burlap Cuttings	6.00	"	6.50
Heavy Baling Bagging	5.25	"	5.75
Paper Mill Bagging	3.50	"	3.75
No. 1 Roofing Bagging	1.75	"	—

Domestic Rags (New)

(F. o. b. Boston)

Shirt Cuttings—			
New Light Prints	.08	@	—
Fancy Percales	.07½	"	.08
New White No. 1	.11	"	.11½
New Light Flannelettes	.08	"	.08½
Canton Flannels, Bleached	.10	"	.11
Underwear Cutters, Bleached	.10	"	.11
Underwear Cutters, Unbleached	.11	"	.12
Silesias No. 1	.08	"	.08½
New Black Silesias	.05	"	—
Red Cotton Cuttings	.05	"	—
Blue Overalls	.08½	"	.09
Soft Unbleached	.11	"	.12
Blue Cheviots	.08½	"	.09
Fancy	.06	"	—
Washable	.06	"	—
Khaki Cuttings	.06½	"	.07¼
Corduroy	.83½	"	—
Khaki Canvas	.06¼	"	.06½
B. V. D. Cuttings	.10½	"	.11½

Domestic Rags (Old)

(F. o. b. Boston)

White No. 1—			
Repacked	3.80	@	—
Miscellaneous	3.20	"	—
White No. 2—			
Miscellaneous	2.65	"	—
Twos and Blues, Repacked	2.20	"	—
Old Blue Overalls	2.25	"	2.50
Thirds and Blues, Repacked	2.20	"	—
Miscellaneous	1.80	"	—
Black Stockings	3.50	"	4.00
Roofing Stock—			
No. 1	2.00	"	—
No. 2	1.90	"	2.00
No. 3	1.35	"	—
No. 4	1.35	"	—
No. 5, Quality A	1.35	"	—
Quality B	1.20	"	—
Quality C	.95	"	—
Old Manila Rope	6.00	"	—

Foreign Rags

(F. o. b. Boston)

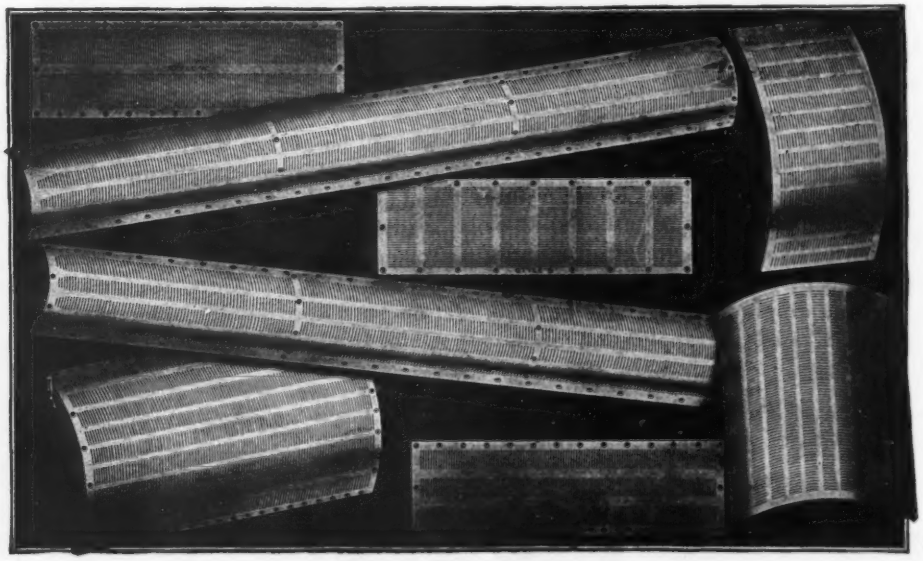
Canvas	(nominal)
Dark Cottons	(nominal)
Dutch Blues	(nominal)
New Checks and Blues	(nominal)
Old Fustians	(nominal)
Old Linsey Garments	(nominal)
New Silesias	(nominal)

CHICAGO

Waste Paper

(F. o. b. Chicago)
Mill Prices, Baled

Shavings—			
No. 1 Hard White Envelope Cuts, one cut	$110.00	@	$120.00
No. 1 Hard White Shavings, unruled	105.00	"	115.00
No. 1 Soft White Shavings	80.00	"	95.00
No. 1 White Ledger	55.00	"	65.00
No. 1 Heavy Books & Magazines	40.00	"	43.00
White Blank News	43.00	"	49.00
Mixed Kraft Env. & Bag Cuttings	75.00	"	85.00
No. 1 Assorted Old Kraft	45.00	"	55.00
Overissue News	28.00	"	—
No. 1 News	20.00	"	—
No. 1 Mixed Paper	12.00	"	—
Old Corrugated	30.00	"	—
Mill Wrappers	22.00	"	—



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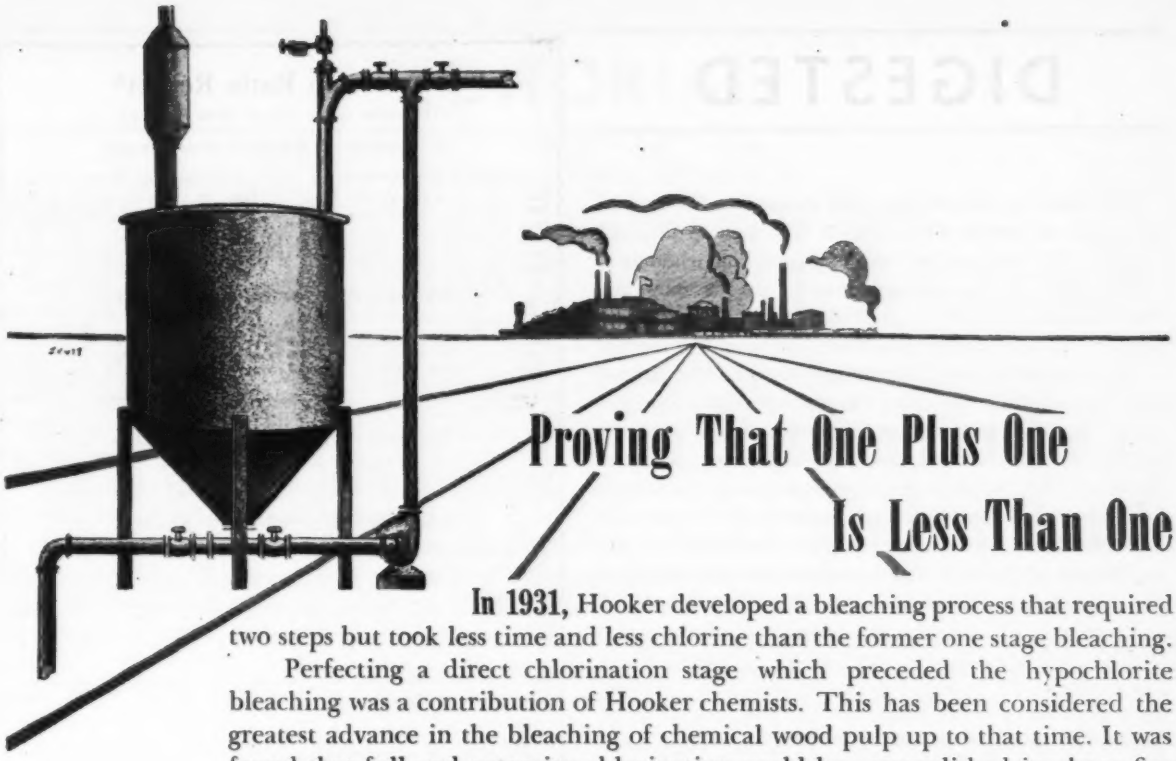
MAGNUS METAL CORP. FITCHBURG, MASS.



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In 1931, Hooker developed a bleaching process that required two steps but took less time and less chlorine than the former one stage bleaching.

Perfecting a direct chlorination stage which preceded the hypochlorite bleaching was a contribution of Hooker chemists. This has been considered the greatest advance in the bleaching of chemical wood pulp up to that time. It was found that full and extensive chlorination could be accomplished in about five minutes by adding an excess of chlorine at once. The unused chlorine was then utilized to make hypochlorite by the quick addition and mixing of milk of lime with the chlorinated pulp in the acid stage. For this procedure Hooker engineers designed a special screen for the milk of lime, helping make this stage more thorough and efficient.

This process, introduced by Hooker's Technical Staff, made it possible for the first time to bleach sulfate and even hard bleaching kraft pulps in a simple two stage operation and secure products at least as white as commercially bleached soda pulps and having a strength almost equal to that of unbleached pulp.

It is because of this pioneering in pulp and paper making that Hooker chemists and workmen know the importance of high grade chemicals in your work and why they are determined that each shipment of Hooker Chlorine, Caustic Soda and the other Hooker pulp and paper chemicals is up to its original high standard of purity and uniformity.

The work of Hooker chemists in the pulp and paper field, in the form of informative and practically helpful literature, is available upon request. Why not send for a list of these up-to-date Bulletins that may be of value to you in your work?

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DIGESTED

The material, educational, and cultural well-being of all classes of people depend upon an adequate financial income. To workers that means wages high enough to enable them to maintain themselves in decency and comfort and to establish a standard of living commensurate with the requirements of American citizenship.

This is a noble objective. It squares with the American way of life. Workers everywhere should be encouraged, not hampered or hindered, in their efforts to realize such a high and lofty purpose. Such an economic and social order would serve to perpetuate our free democratic form of government, to prevent the spread of Communism, or the acceptance of any totalitarian philosophy and to serve as a guarantee of the preservation of our free enterprise system.

Apparently the authors and supporters of the Taft-Hartley anti-labor law ignored all these facts. Their actions must be interpreted as meaning that strong serviceable labor unions must not be permitted to exist within our economic and social life, that only weak and impotent labor unions shall be allowed to survive and that labor may have a shadow of a labor movement but not the substance.—*From the Special Conference Committee Report of the A.F.L.*

Production Ratio Report*

(Production as per cent of six-day capacity)

COMPARATIVE WEEKLY SUMMARIES

Current Weeks—1947		Corresponding Weeks—1946	
June 7	106.7	June 8	104.0
June 14	107.2	June 15	104.0
June 21	106.1	June 22	106.2
June 28	103.7	June 29	105.5
July 5	62.7	July 6	61.1
July 12	*92.3*	July 13	95.2

COMPARATIVE MONTHLY SUMMARIES

1946							
Jan.	94.7	June	104.6	Nov.	105.5	Feb.	105.9
Feb.	98.4	July	94.0	Dec.	97.0	Mar.	106.1
Mar.	104.4	Aug.	104.7	Year Avg.	101.1	Apr.	105.1
Apr.	102.7	Sept.	101.3	1947		May	106.2
May	100.7	Oct.	106.4	Jan.	102.1	June	*106.0*

COMPARATIVE YEARLY SUMMARIES

	1940	1941	1942	1943	1944	1945	1946	1947
Year to Date	86.7	93.1	96.3	87.6	87.2	87.6	99.1	*103.6*
Year Average	85.6	97.4	90.4	87.8	88.1	89.4	101.1	

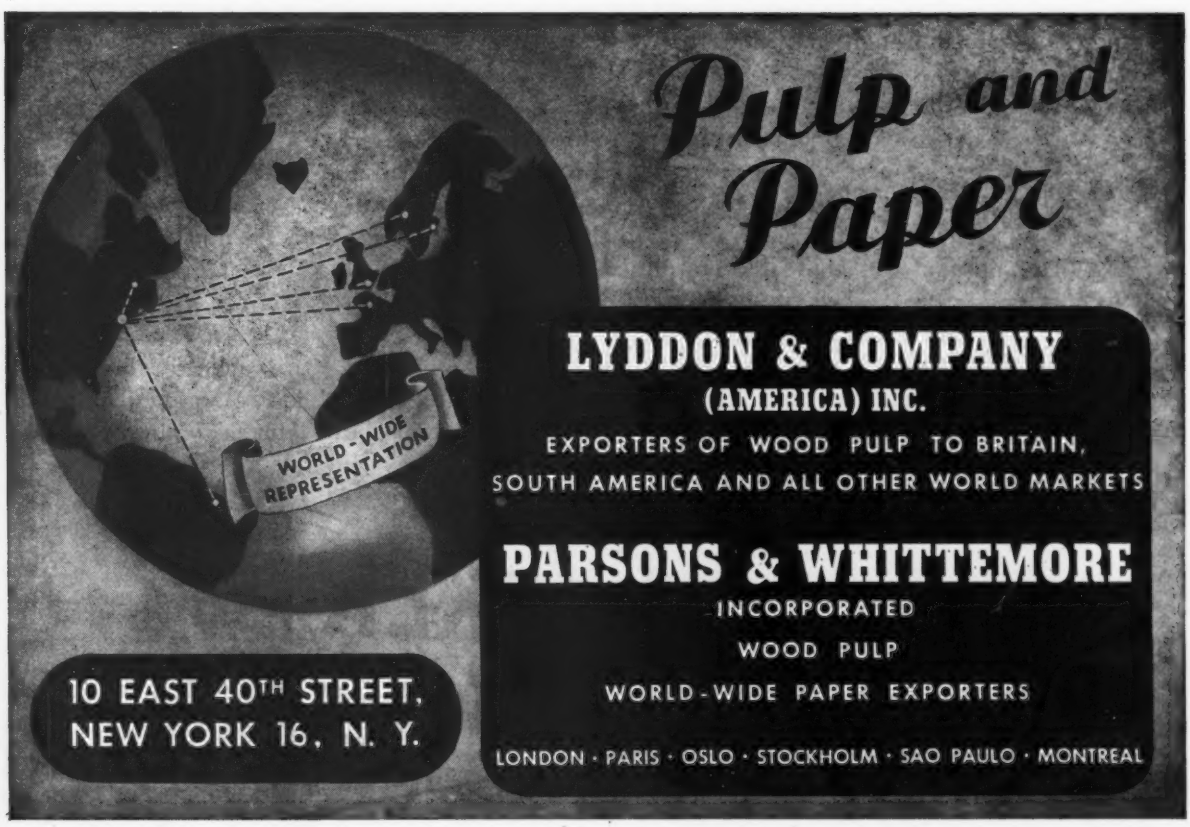
PAPERBOARD OPERATING RATIOS†

Current Weeks—1947		Corresponding Weeks—1946	
June 7	98	June 8	96
June 14	103	June 15	98
June 21	102	June 22	97
June 28	102	June 29	98
July 5	78	July 6	70
July 12	*76*	July 13	87

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Year Avg.
1946	90	91	100	99	94	97	89	99	96	100	99	92	96
1947	99	103	101	100	101	*101*							

* Based on tonnage reported to American Paper and Pulp Association. Does not include mills reporting to National Paperboard Association, except in isolated cases where both paper and paperboard are produced and separate tonnage figures are not readily available. Does not include mills producing newsprint exclusively.

† Per cents of operation based on "Inch-Hours" reported to the National Paperboard Association.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EDITORIAL

"Other Markets"

Trade Minister McKinnon probably will ask that his remarks be corrected as published after he spoke last week in the Canadian House of Commons. As quoted, aside from the deep feeling which he expressed at seeing an old customer reduce its purchases, his statement carried a phrase that may cause the editorial writers to seek for newer and more burning phrases. He was made to appear as having said that there are other markets where United States dollars can be obtained for newsprint than in England.

The problem of Canadian newsprint, ever pressing, has been brought back into a field of speculation as a result of Britain's decision to reduce the size of its newspapers again in order to reduce the amount of newsprint that it shall have to import from Canada. Quite apart from the propriety of speculating, at this distance, on matters of Empire policy and the form in which these policies shall be expressed, to the United States such an action reduces itself simply to the possibility that the amount that Britain saves may be now available to publishers on this continent.

American publishers are already wondering whether they can obtain the Canadian newsprint which Britain relinquishes. The British publisher, it is urged, will not be hurt because in the war he made profits out of four-page papers.

The British reader will get less than he wants and so the publisher regrets that he cannot meet the demand. As the London Financial Times says, "This government does not like the press overmuch—that is clear. Whenever there are cuts, its thoughts fly there, like a bird to its nest. In the fuel crisis it reduced the dailies and 'under powers it did not possess,' suppressed the periodicals, to effect a negligible saving in electricity units. Now, back they go to wartime papers again, to effect a negligible saving in imports—a small fraction of one per cent of our current deficit and not one American dollar."

Minister MacKinnon, in Commons, declared that the matter was receiving the "very earnest" attention of the trade and commerce, finance and external affairs departments. He said it would appear that the United Kingdom feels it has to restrict imports and this naturally would affect Canada.

Newsprint likely would be affected. However, he added, newsprint was in short supply in Canada and there were other markets where United States dollars could be obtained for newsprint. But the newsprint people were worried about the possible loss of the traditional British market and this was being watched closely.

Management Opportunity

In the six-point program which has been promulgated by the American Federation of Labor as its policy toward the Taft-Hartley Labor Relations Bill, and as a frank challenge to the power of the majority to enact laws that shall work to broad advantage, industry as a whole has discovered that recourse to perfectly legal measures is contemplated. It is within everybody's right to seek to have laws repealed, to test their validity in the courts, to vote against a Congressman whom he may not like for purely personal reasons. It is to be expected that men who have made an honest career of appearing as spokesmen for labor should take an adamant stand against any enactment that might threaten to impinge on the privileges which they have won for themselves and their constituents in more recent years. It also is natural that the policy and the strong statements which have accompanied its publication should bear every mark of being addressed to more than one audience—to industry, to the general public, and to the membership which these men have represented so many years and have built up to such impressively substantial numbers.

It is this membership, after all, in which industry is interested. The union spokesman occupies a strategic position in the relationship of an employer and the working force. But it is the working force which turns out the production against which the payroll is a charge and which provides the funds to keep the wheels turning.

And it is the working force which comes into daily contact with Management and Management policies and thereby is in a most acutely open position to be influenced for good or bad by its experience.

This fact presents to Management a golden opportunity, not to destroy unions or union procedures, but rather to so conduct its future relations as to disarm the more extreme statements that have been heard. There is no reason in the law for any claim that union destruction is contemplated. Many management executives have declared that they welcome an opportunity to talk with union men who have a sense of responsibility. By a continued adherence to such a policy—responsibility on both sides, fair and just treatment, Management finds that it has a new opportunity to meet its men face to face, not under the cloud of recent political labor relations policies.

W. L. Cook

EDITOR

A LOW-COST ANSWER

to High Quality Clay Coating of Paper

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You can look for better results in clay paper coatings when you use Dow Latex 546 as a binder. It can be combined with starch, soya flour or casein.

Adding Dow Latex 546 to starch binders makes for greatly improved gloss and smoothness, with fine flexibility. These blends—equal to casein and less expensive—are especially important for coating label stocks because they give you high luster in gloss inks and label varnishes. Addition of Latex to starch binders also minimizes dusting at the calender stacks.

Blends of Dow Latex 546 and casein provide definitely superior casein coatings—smoother, more flexible, water resistant, and highly resistant to abrasion. Gloss inks retain a high degree of luster on these coatings, and they make a really washable wallpaper.

Latex-starch blends are much simpler to apply by brush coating than straight starch binders, and latex-casein blends can also be applied easily by standard methods. The complete story of Dow Latex 546 may suggest how you can use it to advantage—just call the nearest Dow office.

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122 E. 42nd ST., NEW YORK 17, N. Y. Edited By R. G. MACDONALD, Secretary

Paper for Plastic Laminates*

By J. C. Pitzer[1]

Abstract

Laminated plastics are distinguished from other plastic materials in that they are available in much larger areas of thin cross-section. Paper is used as a base for the majority of laminated plastics that are used in the electrical industry. Other uses for paper base laminated plastics are structural such as refrigerator door liners and decorative for such applications as table tops, etc. Practically all types of paper pulp such as kraft, sulphite, and alpha are used in papers for laminated plastics in one form or another. Some of the properties in a paper which are influential on the quality of finished laminates are "wildness," sizing, absorbency, bulk factor, and pH. Each of these factors have some bearing on all finished laminated materials but may be influenced more by one individual property of the paper than by a combination of several properties. Cleanliness of paper for laminated material is quite important, especially in materials which are to be used for certain in electrical or decorative applications when the dirt may be seen in the surface.

Laminated plastics are distinguished from the other branches of the plastic industry by the fact that they are produced from super-imposed layers of an impregnated base material whereas molded or extruded plastics are produced from a pure resin or a homogeneous mixture of resin and filler. Laminates are usually available in larger areas in thinner thicknesses than are molded or extruded plastics. Laminates also differ from other forms of plastics in that sheet stock laminates receive their pressure in only one direction without restraint in the other two directions. Laminates depend on the filler to prevent spread in all directions.

Laminated plastics are available with a variety of fillers or base materials; namely, paper, cotton fabric, glass cloth, asbestos cloth or paper, and wood veneers. For the purpose of this discourse, laminated materials will be restricted to those made from cellulose base papers.

The main functions of a paper in a laminate is first, to provide a means for distributing synthetic resin over comparatively large areas which subsequently may be pressed in rather thin sheets. Such sheets may be produced up to 48 inches wide and 100 inches long within thickness limits of 0.007 inch total variation in any one sheet. Molding compounds cannot ordinarily be distributed over such large areas with close thickness limits. Secondly, paper serves to improve the electrical properties and/or the mechanical strength of the resins with which they are incorporated. The third function of paper in a laminated material may be to serve as a carrying medium for a decorative design or color for the surface.

Laminated products are made by saturating or coating paper in sheet form (usually rolls) with a resin solution. After drying the solvent from the resin, the impregnated material is either cut into laminations for making sheets or convolutely wound into tubing directly from the coated rolls. For sheet stock, laminations are stacked together to give the desired quality and thickness. This assembly may consist of one or several types of impregnated material, for example: there may be a soft paper low resin content core and a high finished paper, high resin surface. Again, a laminated sheet may be built using a highly refined paper carrying a printed decorative design on the surface and a kraft paper core. After assemblies are made up they are placed between flat steel plates and cured into a solid sheet by the application of heat and pressure in a hydraulic press. Tubing, after winding, may be cured in an oven on a mandrel or in a mold where both heat and pressure are applied.

Applications of Laminates

The applications of paper base laminates are numerous and varied. The electrical industry uses the major part of paper base laminates which are made for industrial applications. Radio sub-panels and socket bases are fabricated from laminated materials. Radio coils are wound on laminated plastic tubing. The x-ray equipment industry uses laminates not only for electrical insulating purposes, but also for covers for cassette tops, because laminated plastic material is opaque to ordinary light but is transparent to x-ray, therefore the film can be covered up with a laminate and yet the picture can be taken through the material. Electrical power, production, and distribution industries use laminates for circuit breaker panels, transformer covers, and lead-in bushings. Many insulating applications of laminated material in the automotive and aircraft industries are such as switch backs, distributor mounting bases, lamp socket bases and spark plug sleeves.

Laminated plastics are used for certain structural applications where the electrical properties are of no concern. The first example of this application is for

* Presented at the Annual Meeting of the Technical Association of the Pulp & Paper Industry, Hotel Commodore, New York, N. Y., Feb. 24-27, 1947.

[1] Eng. Dept., The Formica Insulation Co., Cincinnati, Ohio.

use in electrical refrigeration where the material is used for liners inside refrigerator doors and for breaker strips between the inner and outer compartments of the box. The rayon producing industry uses laminates which are made from certain chemical resistant resins because of their ability to resist chemicals which are used in producing rayon and the fact that they do not corrode and stain the rayon yarns.

One of the major uses of laminates is in the decorative field. The most common examples of these applications are for restaurant and cafe counters, back bars, wainscots, and hotel furniture top applications. Residential applications of laminates are dinette table tops and sink drainboards. Decorative laminates are finding increasing usage in the transportation field for such applications as taxicab passenger compartment linings and railway car applications. These railway applications are such as window sills, lounge car tables, and post-formed raised edge tables.

Paper contributes much toward the properties of any given grade of laminated material. For example, kraft papers make laminates with high mechanical strength and good electrical properties where moisture resistance under high humidity applications is not likely to be a factor. Most structural and decorative laminates mentioned previously are made with kraft paper core.

Papers Used

Sulphite papers, either semibleached or bleached, together with alpha-cellulose papers, (straight or combined with other fibers) comprise the base for the larger part of laminated materials used for industrial electrical insulation. Papers of this type may be varied in furnish, absorbency or finish to provide such qualities as good machining properties, good punching properties, or high insulation resistance. Sulphite or alpha papers usually give better water resistance to a laminate than does kraft paper when impregnated with the same resins under the same conditions. Alpha papers also serve as a base for printing designs which are ultimately used in decorative laminates.

Rag papers are used to some extent by the laminating industry because of their better resistance to heat and the fact that they will permit greater deformation in certain molded shapes which are made from impregnated sheets of laminated materials. Rag fibers are used to some extent where it is desired to incorporate coloring matter such as pigment or dyes into the paper.

Some experimental work has been done toward using resin treated high wet strength papers as a base for subsequent impregnation with urea or melamine resins. This work has not been entirely satisfactory because of the insolubility of the resins used for high wet strength in the resins used for laminating.

Paper Properties

There are certain properties in common which all papers must have to be satisfactory for use in laminated products. The formation of a sheet of paper is quite important in its effect on the finished product. Excessive "wildness" may result in unimpregnated fiber bundles. These unimpregnated fibers in turn will give high water absorption or erratic electrical properties. "Wildness" makes the control of uniform resin pickup of the paper practically impossible due to the fact that the light areas will pick up so much more resin than will areas with heavy bundles of fiber. The manufacturer of paper must balance formation and other related properties, such as strength and absorbency, in order to produce papers which will not emphasize one property to the detriment of others in the finished laminates.

The finish of a paper has an effect on the bonding strength of the laminated material. A highly finished paper tends to give low bonding strength which may cause delamination of the finished material when it is punched or fabricated in such a way as to apply a stress between the laminations. In general, the rougher the finish of a paper, the more suitable that paper will be as a filler for laminated materials. Surface sheet papers are frequently used having a smooth or high finish in order to prevent fibers being exposed in the surface of a laminated sheet, after a buffing operation. Different results can be observed in a paper, depending upon whether the finish is applied as a result of calendering or being applied on the wet presses.

The types of sizing commonly used by the paper industry such as rosin, casein, and starch either tend to repell the impregnating resin from the fibers or are hygroscopic in themselves and as a result give an abnormally high water absorption to the finished laminate. While certain types of fillers may be used in the form of pigments without detrimental effects, it is true that the majority of the paper used by the laminating industry is free from any type of sizing materials.

One of the methods for evaluating papers to be used in plastic laminates is by means of an absorbency test. The most common of these tests are rise in water (Klemm) or pentrometer rate of impregnation using oils. These methods do not always indicate the actual absorbency of a paper for the medium with which it is to be impregnated. For example, slightly sized kraft paper will show practically no "rise of water" test, whereas the same paper may be readily saturated with an alcohol solution of phenolic resin. The most satisfactory method for evaluating absorbency characteristic is by the actual use of the resin solution with which a paper is to impregnated. This, however, is often difficult to do especially when alcohol soluble varnishes are being used due to solvent evaporation. Careful correlation between the paper producer and the consumer will frequently reveal other impregnating mediums which will give very similar comparative rates of absorbency. There is considerable room for improved methods for the evaluation of the absorbency of papers which are to be used for impregnation with various types of synthetic resins such as phenolic, ureas, and melamine. Air resistance tests are used to some extent in evaluating papers which are to be used for tubing. The results are liable to be misleading especially if the paper under test has a "wild" formation.

The weight per unit of area for paper to be used in laminates must be uniform not only across the sheet but also from the beginning to the end of a roll. Variation in weight seriously affects the resin pickup of a sheet and this variation in turn is reflected in variation of quality of the finished product. Resin content determinations are usually made by taking a sample of the raw paper from the beginning of the roll and then cutting out samples of similar area from the treated roll as it is being impregnated. From the difference in weight of these two samples the resin content is calculated. It can be readily seen that a variation of 5% in weight of the raw paper will be immediately reflected in similar variations of the impregnated product. These variations in weight may

be wider than the permissible resin variation established for a given grade. The statement regarding variation in weight also holds true for variations in thickness. One of the factors which is most influential in the resin pick-up of papers is that commonly known as apparent density or bulk factor. Variation in either thickness or weight which markedly affects this value will greatly affect the amount of impregnation. Variations as small as 0.3 pounds per point of caliper in the bulk factor of a 90 pound 9-point kraft paper will change resin pick-up by as much as 5%.

The pH of a paper has considerable influence on manner in which a paper will impregnate as well as on the characteristics of the final product. Papers having a pH value considerably on the alkaline side very often will give a laminate which is insufficiently cured because of the effect on certain plasticizers which are frequently used in laminating varnishes that are to be used for punching. On the other hand, papers having a pH value on the acid side are likely to give a laminate which is very brittle because of the acid effect on both the resin and the fiber at the elevated temperatures necessary for curing. Melamine and urea resins are more influenced by variations in pH of the paper than are the phenolic resins which are most commonly used for industrial applications. The presence of other chemicals which are subject to hydrolysis can influence the properties of a finished laminate. For example, papers containing excessive amounts of chlorides very definitely give a lower insulation resistance value when the material is subjected to high humidity because of the presence of ionizable chlorides on the surface.

American Society for Testing Materials Specifications D 202 has been adopted as a method for correlating the various tests into one group for papers which may be used for impregnating and laminating.

The general cleanliness of papers of laminates is quite important. Foreign particles such as metals and stones are causes of trouble in laminates which are to be used for such applications as x-ray cassette tops. Such particles show up on the x-ray as opaque spots and may be mistaken for foreign particles in the subject from which the x-ray picture is made. Slime spots are objectionable because they do not accept impregnation and when incorporated into the finished material may cause blisters if the material is heated during any subsequent operation. Other foreign materials such as rubber or wood shives are objectionable when the finished product is to be sanded to a uniform surface finish.

From the foregoing remarks, the paper manufacturer may conclude that making a paper to be used in laminated plastics is such an exacting requirement that the reward is not worth the effort. Nevertheless, there are many paper manufacturers in the country producing materials which are satisfactory in every respect. Not all manufacturers are able to supply papers meeting all of the requirements for the various laminated plastic producers due to the different methods of impregnation now in use. Any one of those manufacturers who are able to meet the majority part of the requirements for laminating papers are finding that they have an ever increasing demand for their products. It is to be hoped that more paper manufacturers will appreciate the influence of their product on the laminated plastic industry and thereby strive to attain the high quality of standards which have been set up for laminated plastic materials.

TAPPI Notes

Allan G. Strang, formerly of the California-Oregon Paper Mills, is now chemist for the Columbia River Paper Mills, Vancouver, Wash.

D. E. Milne has succeeded Arthur H. Holbrook as the official corporate representative of the English China Clays Sales Corporation, New York, N. Y., in the Technical Association.

Willis C. Dickerman, formerly of the New York State College of Forestry, is now in the paper inspection department of the Champion Paper & Fibre Company, Canton, N. C.

John M. McEwen, formerly of the Institute of Paper Chemistry, is now in the research department of the Weyerhaeuser Timber Company, Pulp Division, Longview, Wash.

William F. Connolly, formerly of Paper & Industrial Appliances, Inc., is now technical service representative for Bauer Bros. Company, Springfield, Ohio.

George L. Nystrom, formerly of the University of Maine, is now in the technical service department of the Eastern Corporation, So. Brewer, Maine.

Joseph Schuermann has succeeded William Wilshusen as official representative of the Cameron Machine Company, Brooklyn, N. Y. in the Technical Association.

Robert Woodhead, technical director of the Tasmania Paper & Timber Mills, Launceton, Tasmania, is a visitor in the United States at present.

Howard W. Morgan has succeeded Robert B. Wolf as the official corporate representative of the Weyerhaeuser Timber Company, Pulp Division in the Technical Association.

James Keaton, formerly of British Paints, Ltd., is now chemist for Messrs. Gregory's of Liverpool Ltd., Liverpool, England.

R. S. Roeller has succeeded B. P. Steele as the official representative of the Pennsylvania Salt Mfg. Company in the Technical Association.

John W. Crosson, formerly of the Mead Sales Corporation, is now Asst. Vice President of the McGraw-Hill Publishing Company, New York, N. Y.

E. G. Milham is the official corporate representative of the Watervliet Paper Company, Watervliet, Mich. in the Technical Association.

Erik Ekholm is the official corporate representative of the Puget Sound Pulp and Timber Company, Bellingham, Wash. in the Technical Association.

Milton R. Bailey is now Vice President of the Bulkley, Dunton Pulp Company, Kalamazoo, Mich.

R. Tourangeau has succeeded Carl Magnus as the official corporate representative of the Wausau Paper Mills Company in the Technical Association.

Members of the Technical Association of the Pulp and Paper Industry may receive, upon request, copies of the Bibliography of Paper Making 1936-1945. More than 1000 requests have been received. Nonmembers may purchase this volume at $10.00 per copy.

The Technical Association has a few remaining copies of the Bibliography of Paper Making and U. S. Patents for the years 1937, 1941 and 1942. These may be purchased by members at $1.00 and by nonmembers at $3.00. Members are advised to preserve the annual Bibliographies since the U. S. Patents do not appear in the Collective Bibliography for 1936-1945.

Sodium Carboxymethylcellulose for Papermaking*

By Eleanor F. Horsey[1]

Abstract

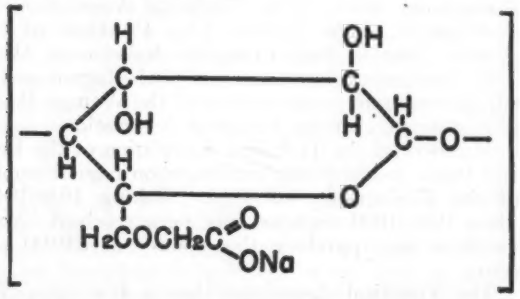
Carboxymethylcellulose sodium salt (CMC) has been employed in various papermaking operations. The procedures described include surface applications on paper and paperboard and internal addition at the beater at varied basis weights and freenesses. The surface treatments gave increases in resistance to the penetration of hydrophobic materials, such as oils and waxes, as well as generally improved surface properties. A surface application of carboxymethylcellulose ammonium salt gave higher resistance than CMC to the penetration of hydrophilic materials such as feather ink.

Addition of CMC at the beater produced a stronger, more highly sized sheet at high freenesses, and a less opaque, less porous sheet at low freenesses. High-viscosity-type CMC of substitution 0.3 to 0.45 was used for beater addition; lower-viscosity types of CMC of substituton ca *0.75 were used for surface applications.*

A water-soluble cellulose derivative called sodium carboxymethylcellulose (CMC) is now being introduced to the paper industry. It is finding uses in the trade for surface treatments of paper and has potential value for internal applications. Several recent articles have referred in a general way to such uses *(1, 2, 3)*. This article is intended, first, to outline those properties of CMC which contribute most to its usefulness in papermaking and, second, to describe in some detail commercial and laboratory applications of CMC.

Chemical Constitution and Properties

CMC is the sodium salt of a cellulose ether-acid formed by the reaction of alkali cellulose and monochloroacetic acid. In a single glucose unit of cellulose, 3.0 hydroxyl groups are available for substitution. A unit of CMC having a substitution of 1.0, i.e., containing one carboxymethyl group per glucose unit, can be represented thus:



The degree of substitution influences the water solubility of carboxymethylcellulose and its salts and is one reason for the choice of different substitution types for the present work. At substitutions of 0.3 and higher, CMC is dispersible in water, becoming more readily soluble as the substitution increases. At substitutions below 0.3, CMC becomes increasingly water-insoluble and generally requires alkali and low temperatures for solution.

Since the determined substitution value is merely an average for all the glucose units, water solubility is also affected by the uniformity of the substitution of carboxymethyl groups along the cellulose chain. This is especially evident with samples in the low-substitution ranges where water solubility is lower. For example, a 0.3 uniformly-substituted sample may be almost completely water-soluble, while another 0.3 less uniformly-substituted sample may contain a considerable quantity of water-insoluble material. In the higher ranges of substitution, all samples give almost clear water solutions.

Another factor affecting the water solubility of CMC is the chain length of the product. In general, materials of shorter chain length are more water-soluble than similar long-chain substitution counterparts. It is relatively easy to decrease the chain length of CMC of 0.7 to 0.8 substitution to produce widely-varied viscosity-type materials. However, effective degradation of 0.3-substituted materials is more difficult to achieve and, hence, such materials are not adapted for so wide a variety of surface applications.

Two types of CMC have been used in the present work. The first, hereafter referred to as "surface-type" CMC, has a substitution of approximately 0.75, has been processed to reduce its solution viscosity, and yields almost clear water solutions *(4)*. The second, hereafter referred to as "beater-type" CMC, has a substitution of 0.3 to 0.45 and yields hazy water solutions.

Typical viscosity-concentration curves for the three available surface types of CMC are shown in Fig. 1. Also shown in Fig. 1 are typical curves for a number of familiar commercial papermaking materials. As comparisons of these curves demonstrate, the three viscosity types of CMC fall approximately in the ranges of methyl cellulose viscosity types, but are definitely higher than the polyvinyl alcohol viscosity types, and much higher than casein or converted starch. With one exception, the low-viscosity surface-type CMC has been employed in this work. In the laboratory, surface-type CMC samples have been prepared in the viscosity ranges of all these materials. If beater-type CMC was compared on this same graph, it would appear as an extra high viscosity-type CMC.

The use of beater-type CMC in papermaking depends upon its precipitation as an insoluble metallic salt. In some special cases the insolubilization of surface-type CMC may also be desirable and may be accomplished by special treatment. Addition to CMC solutions of many metallic ions, such as those of Ag, Pb, Hg, Fe, Al, Ni, and Cu, precipitates the corresponding carboxymethylcellulose salt, and, for most of such salts, precipitation is more complete for the

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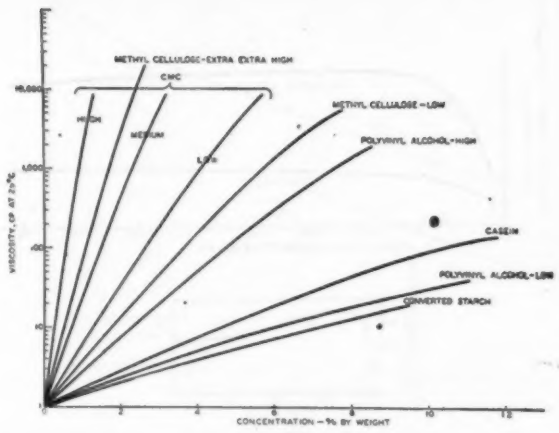

FIG. 1
Viscosity-Concentration Curves for Water Solutions of Surface-Type CMC and Other Polymers

beater-type than for the surface-type CMC. Certain of these metallic salts, e.g., the aluminum and copper salts, are soluble in NH_4OH as well as other alkalies, both organic and inorganic. Treatment of CMC solution with mineral acids precipitates the free acid over a wide range of acid concentrations. At the same pH, precipitation is more complete for beater-type than for surface-type CMC. The free acid may also be dissolved in NH_4OH by formation of the ammonium salt, and, according to Brown and Houghton *(5)*, the 0.3-substituted ammonium salt is unstable and loses NH_3 on heating to 50 to 60°C. Both the free acid and its salts are insoluble in nonalkaline organic solvents and unaffected by oils and waxes. The pH's of beater-type free acid and sodium salt have been reported to be 3.6 and 8.0, respectively *(5)*.

Surface Treatments

A number of commercial trials have been conducted in which surface-type CMC was applied at the size press or calender stack, or both. In order to demonstrate the properties contributed by CMC to paper or board, the results of this work will be discussed at some length.

Solutions of 2% and 4% low-viscosity surface-type CMC were prepared by dissolving the dry, granular powder in cold water with rapid agitation. In order to improve the oil resistance of one side of a food-packaging board, the 2% solution was applied at the size press and the 4% solution at the calender water box. In one run both size press and calender stack applications were made and, in another run, only a calender stack application was made. The former procedure gave a total CMC applied weight, as determined by analyses, of about 0.5 lb./R., compared with about 0.3 lb./R. for the latter procedure.

These light-weight CMC applications did not yield continuous films and, therefore, the board was not expected to be oilproof. Thus, very thin liquids such as turpentine or alcohol penetrated the treated boards almost as rapidly as if they were untreated (Fig. 2). However, since the oil penetration time is directly proportional to the viscosity of the penetrant *(6)*, a series of oils of increasing viscosity—paraffin oil, peanut oil, and heavy mineral oil—showed increasing penetration times for the treated boards when compared with the untreated boards. This indicates that even more viscous liquids, such as gloss inks, would show still greater differences. In fact, as long as the penetrant was any liquid to which CMC was insensitive (i.e., nonalkaline organic solvents and hydrophobic materials in general), noncontinuous CMC applications increased the penetration time in direct proportion to the viscosity of the penetrant.

As these curves also show, the two treatments of CMC (upper curve in Fig. 2) gave higher oil resistance than the single treatment (middle curve in Fig. 2) because successive applications gave a heavier (0.5 vs. 0.3 lb./R.) and more continuous film. In this case, since two applications of CMC were made in a range approaching highest operable CMC solution concentrations, a degree of oil resistance approaching a maximum (on one side) has been attained. Still higher oil resistance would be expected to result from the use of a lower viscosity-type CMC at higher solution solids.

In another instance a solution of 4% low-viscosity surface-type CMC was applied at the calender stack to a packaging board which was to be gloss-ink printed. Oil resistance higher than that required for optimum printability was obtained. Adjustment of the oil resistance to the desired value was accomplished by reducing the concentration of the CMC solution. However, since theoretical consideration indicates that minimum penetration into the sheet should produce minimum waste of CMC as a surface film-former, it should be preferable to reduce the oil resistance by the use of a higher viscosity-type CMC at a lower concentration. An investigation is planned to determine whether either the medium- or the high-viscosity-type is better adapted than the low-viscosity-type for treatment of board before gloss-ink printing. The choice of the viscosity type depends upon the order of the oil resistance required and should be the one best suited to produce the desired range of oil resistance when used at the highest operable solution viscosity.

As an extension of the use of CMC to produce oil-resistant paper or paperboard, trials were made in which a reduction in paraffin wax pentration into a board was required. Low-viscosity CMC was applied and subsequent tests showed significant reductions in wax-mottling. Similar trials were carried out on a waxing sheet stock and the CMC treatments reduced the penetration of wax into the sheet. This suggests that the amounts of expensive fillers required to give the same opacity to the finished sheet might be reduced.

Thus far this discussion has been concerned mainly

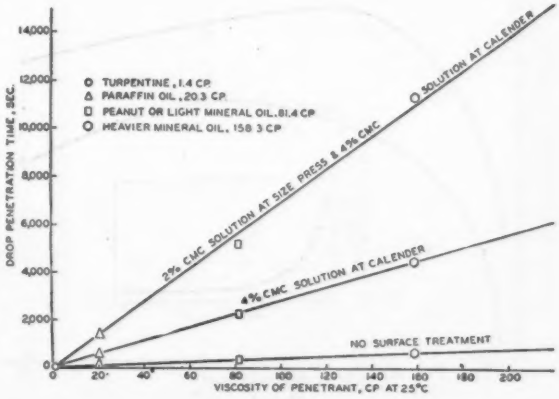
TURPENTINE, 1.4 CP.
PARAFFIN OIL, 20.3 CP.
PEANUT OR LIGHT MINERAL OIL, 81.4 CP.
HEAVIER MINERAL OIL, 158.3 CP.
SOLUTION AT CALENDER
2% CMC SOLUTION AT SIZE PRESS & 4% CMC
4% CMC SOLUTION AT CALENDER
NO SURFACE TREATMENT
DROP PENETRATION TIME, SEC.
VISCOSITY OF PENETRANT, CP AT 25°C

FIG. 2
Effect of Surface-Type CMC on Penetration Time of Various Penetrants. Commercial Surface-Treated Paperboard

with increasing the resistance of paper or board to the penetration of hydrophobic materials. Paper surfaces which will also show resistance to the penetration of hydrophilic materials, such as water or water-base inks, may also be desirable. The possibilities of insolubilizing CMC films, or of treating paper with a water-insoluble salt of carboxymethylcellulose, are numerous. An example of the effect obtainable is shown in the following comparison of laboratory data for the ammonium and sodium salts.

The ammonium salt was prepared by dissolving 0.3-substituted carboxymethylcellulose (the free acid) in a 0.2% NH_4OH solution at 2% solids. This salt was applied by a knife coater to a lightly starch-presized coating stock. The resultant papers were compared with papers similarly treated with a 2% solution of 0.3-substituted CMC (sodium carboxymethylcellulose). All papers wer heated for 10 min. at 75°C. after drying; this treatment, as pH determinations indicated, partially reconverted the ammonium salt to the free acid. The limited data show that an increase in feather ink resistance was obtained even by use of CMC, but three times as great feather ink resistance was obtained by the use of ammonium salt. A significant improvement in dry bursting strength was also obtained with both CMC and the ammonium salt because these heavy applications penetrated completely through the sheet. Where lighter-weight applications are kept on top of the sheet, smaller effects on dry strength must be expected.

Carboxymethylcellulose Solution	Pounds per Ream, Approx.	Bursting Strength, points	Penetration Time, sec. Standard Feather Ink (7)*
None	0	18	18
Ammonium salt	5	27	230
Sodium salt	5	34	92

* A water-base ink solution containing 0.3% HCl.

Besides the improvements in resistance to various types of penetrants, general improvements in surface properties of the sheet or board have been obtained For example, when 0.5 lb./R. of surface-type low-viscosity CMC was applied at the size press to an offset sheet, the surface strength (wax test) was raised from a No. 9 to a No. 18 wax (wire side). This increase was due, presumably, to a surface-smoothing effect, the laying of "fuzz," and to an increase in fiber-fiber bonding. In addition, the resistance of the surface to abrasion was improved. Only 4 Taber Abraser cycles (CS-10 wheels; 500-gram load) were required to rub fibers off the surface of the untreated paper but about 50 cycles were required to produce a similar effect on the CMC-treated paper.

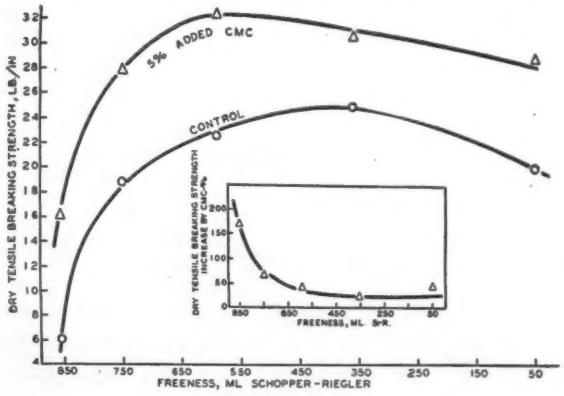

FIG. 3

Effect of Beater-Type CMC on Dry Tensile Breaking Strength at Various Freenesses. 40-lb. (24 × 36 — 500) Bleached Sulphite Handsheets

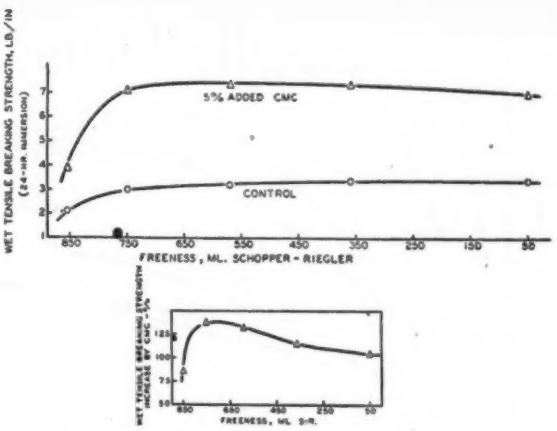

FIG. 4

Effect of Beater-Type CMC on Wet Tensile Breaking Strength at Various Freenesses. 40-lb. (24 × 36 — 500) Bleached Sulphite Handsheets

Internal Treatments

Since the effects of internal addition of CMC can be conveniently studied in the laboratory at widely-varied freenesses and basis weights, this part of the report will be confined almost entirely to laboratory results (which have been confirmed, in general, by commercial trials). The paper-conditioning procedures employed have been described elsewhere *(8)* and paper-testing procedures were either TAPPI standard methods or minor modifications thereof and need not be explained here.

In all the laboratory work, bleached sulphite pulp has been employed with 5% beater-type CMC based on pulp. All basis weights are reported on ream size 24 × 36 — 500. Although the CMC was predissolved for addition to small amounts of beaten pulp, in commercial trials it was added successfully to the beater in the dry form and was dispersed after 15 to 30 minutes beating with the pulp, the time of solution depending upon the efficiency of circulation in the beater. All pulps to which CMC was added were treated with papermakers' alum ($Al_2(SO_4)_3 . 18 H_2O$) to pH 4.5 before sheet formation.

The effective use of CMC for pulp treatment involves more variables than its use for surface treatments. Therefore, this section has been divided into two parts: descriptions of the effects of CMC at high to intermediate freenesses, and at intermediate to low freenesses.

High to Intermediate Freenesses

One of the most striking effects of CMC when added to the beater is the increase in the dry strength of the sheet. According to the theory of Cottrall *(9)* Mark *(10)* and others, dry strength is in part a function of fiber-fiber bonding. Free —OH groups with bound water at fiber-fiber surfaces, when dried in intimate contact, tend to unite as the water is driven off. Based on this theory, unbeaten pulp with few free —OH groups would show lower dry sheet strength than pulp beaten to intermediate freenesses. As an extension of the theory, the addition of a suitable material containing more free —OH groups than the pulp itself would result in an increase in dry strength at a given freeness or the possibility of decreasing the amount of beating required to give the same dry strength. Any material of suitable physical

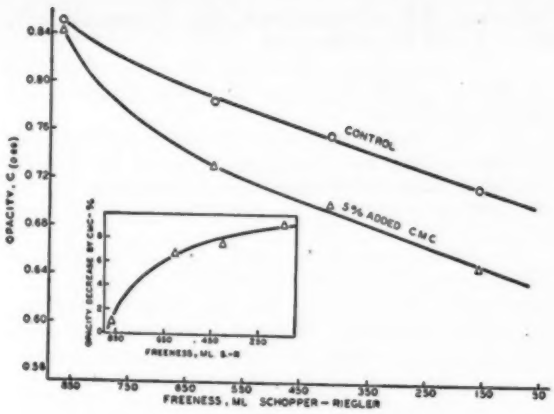

FIG. 5

Effect of Beater-Type CMC on Opacity at Various Freenesses. 40-lb. (24 × 36 — 500) Bleached Sulphite Handsheets

properties which afforded readily available hydroxyl groups should give such effects provided it could be retained in the sheet. Such materials have been called "pulp hydrating" agents.

When CMC was added to pulp at any freeness, it increased the dry tensile breaking strength of the handsheet (Fig. 3). As the inset in Fig. 3 shows, the percentage increase in dry tensile breaking strength on 40-pound handsheets was greatest at high to intermediate freenesses, dropping from 225% increase at little or no beating to 25% increase at 450-ml. Schopper-Reigler (S.-R.). Further, the addition of CMC produced as high dry tensile breaking strength at practically no beating (800 ml. S.-R.) as was obtained by beating pulp to 400 ml. S.-R. without addition of CMC.

In general, this effect of CMC on dry tensile breaking strength at various freenesses has been found to apply to other dry strength properties, e.g., dry bursting strength, dry stiffness, dry folding endurance. The one notable exception was internal tearing resistance which, instead of being increased, was impaired by CMC and by other hydrophilic beater additives, just as it was impaired by beating. The decrease in internal tearing resistance of a CMC sheet has been offset by using pulps of higher freeness which, without treatment, produce sheets of higher porosity and opacity, as well as increased compressibility and dimensional stability.

The dry-strengthening effects of CMC on sheets made from stock at a constant freeness increased with increasing basis weight. Analytical work has shown that the retention of the CMC precipitated with alum also increased with increasing basis weights and could account for the increased dry strength. This indicates that it is more economical to use CMC in lightweight bonds to boards than in tissue types of paper. Moreover, the very real difficulties of measuring improvements in the low strength values for the tissue types, and for sheets from low-strength, inferior grades of pulp, make it difficult to obtain significant results.

The use of beater-type CMC also increased the wet tensile breaking strength of the finished paper (Fig. 4). This wet tensile breaking strength increase on 40-pound handsheets was in the range 90 to 140% but was also dependent upon the freeness. Analytical work has shown that retention of CMC precipitated by alum increased in the early stages of beating and could account for the initial increase in wet tensile breaking strength improvement from 90 to 140% between 850 and 750 ml. S.-R. Thus, when retention was constant, the wet tensile breaking strength was less dependent upon the degree of beating. For dry strength, hydration effects were dominant; for wet strength, retention effects were dominant. The wet strength obtained with beater-type CMC has been found more resistant to acids than to alkalies and CMC papers, in contrast to wet strength papers made with the thermosetting resins, should be defibered with NaOH or Na_2CO_3.

In addition to dry and wet strength, beater-type CMC improved the water and water-base ink resistance obtained with rosin size. CMC alone had little or no effect on rate of ink penetration but when used with 3% rosin size, based on the pulp, the resistance to ink penetration was significantly increased. The form of the percentage improvement curve for resistance to standard feather ink at varying freenesses is quite similar to that of the previously discussed curve shown in the inset in Fig. 3. Actual increases obtained at a freeness of 750 ml. S.-R. on 40-pound handsheets were from 150 to 200 seconds to 300 to 400 seconds.

Since beater-type CMC improved fiber-fiber bonding and sizing, it might be expected to improve also such special use properties as erasability, surface strength, wear-through resistance, and finish. Laboratory and commercial work have confirmed these expected improvements. For example, when 3% CMC was introduced into a commercial sulphite bond sheet, the surface strength was increased by ten waxes and the wear-through resistance from 150 to 1000 Taber Abraser cycles.

Other advantages of using beater-type CMC at intermediate to high freenesses include increased retention of fillers, fines, and dyes at constant freeness. The decreased retention of these materials expected to result from a change to higher freeness is offset if the addition of CMC accompanies the change in freeness.

Intermediate to Low Freenesses

Physical considerations show that filling the air spaces between the fibers of a sheet of paper with a material of similar refractive index, and of density greater than that of air, must produce a sheet of decreased opacity and increased density. Further, the plugging of these air spaces will result in a sheet of increased resistance to the passage of all liquids and gases. If the material used for filling the air spaces is hydrophilic (hence, oil-insoluble), the sheet would have specific resistance to the passage of oils and

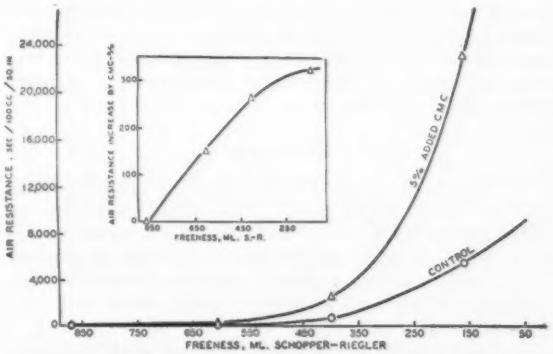

FIG. 6

Effect of Beater-Type CMC on Air Resistance at Various Freenesses. 40-lb. (24 × 36 — 500) Bleached Sulphite Handsheets

greases. CMC, when treated in the beater with papermaker's alum, forms a gelatinous pressure-sensitive precipitate. The dried salt is denser than air, is oil-insoluble, and because of similar structure should have a refractive index almost identical with that of pulp. It would be expected, therefore, to affect all the sheet properties as discussed above. In the following paragraphs, the effect of beater-type CMC on two of these sheet properties, opacity and gas (air) resistance, is reported.

When beater-type CMC was added to pulp at various freenesses (40-pound handsheets), it decreased the opacity of the resultant sheets (Fig. 5). As the inset of Fig. 5 shows, this opacity decrease was barely measurable at high freenesses, but differences were significant at intermediate to low freenesses, or in the range where retention was highest. By addition of CMC the opacity of a sheet made from stock of 100 ml. S.-R. was reduced by 9%. A sheet was produced which gave the same opacity at 475 ml. S.-R. as was normally produced by beating to 100 ml. S.-R. When the amount of beating was thus reduced, the sheet was of higher dry strength (Fig. 3).

These effects on opacity have been shown in the laboratory to be less evident at paperboard weights because board, either with or without CMC, becomes increasingly opaque as thickness increases. The contrast ratio of all paperboards of increasing thickness approached a value of 1.0 (TAPPI opacity 100%).

Beater-type CMC increased the air resistance of 40-pound handsheets at any freeness, but the increase at high freeness was insignificant (Fig. 6). As the inset of Fig. 6 shows, the increase in air resistance was highest at intermediate to low freenesses, where retention was highest. By addition of CMC, the air resistance at 100 ml. S.-R. was increased by 325%. A stronger sheet of the same air resistance was produced at 300 ml. S-R. than was normally produced by beating to 100 ml. S.-R. These effects on air resistance have been shown in the laboratory to be highest on sheets above tissue weights, in which retention was highest.

In a large part of the beater-treatment work which has been discussed, CMC has performed at all freenesses essentially as if it were, itself, a pulp of ultimate hydration, which in a sense it is. Other materials, including modified starches, resins, proteins, and certain natural gums, have also been suggested in the literature as hydrating agents, but, in general, only for work at intermediate to high freenesses. In other parts of the present beater addition work, CMC has been shown to improve the wet strength and sizing of paper. The use of the thermosetting resins for improving these properties of paper is well known, and many other materials for improving sizing have been mentioned in the literature. Comparison of CMC with materials of these various types is beyond the scope of this article.

Summary

1. Paper and paperboard treated at the size press and at the calender stack with water solutions of surface-type CMC showed increased resistance to the penetration of hydrophobic materials such as greases, waxes, oils, and gloss inks. Surface properties, including surface strength and finish, were also improved.

2. Paper and paperboard treated with the ammonium salt of carboxymethylcellulose showed much higher resistance to the penetration of hydrophilic materials, such as feather ink, than a sheet similarly treated with the sodium salt.

3. The beater-type CMC added in the dry form and precipitated with papermakers' alum produced the following effects:

(a) At high to intermediate freenesses it increased general strength and sizing properties of the sheet at the same degree of beating, or it reduced the amount of beating necessary to give the required sheet strength.

(b) At intermediate to low freenesses it decreased the opacity and porosity of the sheet at the same degree of beating, or it reduced the amount of beating necessary to give the required opacity and porosity and thereby produced a stronger sheet.

Acknowledgment

The writer wishes to thank the members of the Technical Service staff of Hercules Powder Company, Inc., who contributed to this work, in particular, H. F. Heller.

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Examination of Industrial Measurements

The McGraw-Hill Book Company has recently issued a book entitled "Examination of Industrial Measurements" by John W. Dudley, Jr., chemical engineer for the American Viscose Company (113 pp. 6 x 9).

This book acquaints engineers with simple and adaptable statistical techniques for the detection of variation in industrial products. Important types of data which reveal causes of variation are discussed and effective means for collecting, analyzing and presenting them are explained. With special emphasis on board industrial application, the book provides simple tools for constructing control charts, making quartile analyses, and analyzing the limitation of curves made from industrial or engineering data. Examples are given to demonstrate the examination of various types of industrial measurements and to illustrate how reliable data can be distinguished from erratic data.

Among the subjects covered are: The Engineer and the Statistician; Types of Industrial Data; Random Variation; The Normal Probability Curve; The Quality Control Chart; Examination by Means of Run; Correlation and Curve Fitting.

Although the statistical method is just beginning to be applied to the paper industry it is expected to advance rapidly through the effort of the Technical Association.

Copies may be obtained from the Book Department of the Technical Association of the Pulp and Paper Industry, 122 East 42nd Street, New York 17, N. Y. at $2.00 per copy.

The Effect of the Adhesive on the Quality Of Paperboard*

I. Measurement of the Glue-Line Strength of Corrugated Board.

By Ralph E. Green[1], Robert H. Sams[2], and John H. Wills[3]

Abstract

The glue-line strength is one of the most direct measures of the quality of corrugated paperboard. Early methods of measurement of the flute bond strength of corrugated board are briefly reviewed. Revised equipment and a recommended procedure are described for the separation of a chosen liner by a tensile pull on steel pins inserted in alternate flutes.

The importance of the adhesive to the quality of laminated board has long been recognized. Strong and complete joints between the sheets of solid paperboard or of liners and corrugated medium are obviously necessary if the final product is to provide the maximum resistance against the strains of shaping and use.

Various methods have been used to judge the quality of these laminated boards before they are made up. The simplest and most obvious way is by sensory tests. How much fiber is torn when a liner is pulled away from the corrugated medium or the sheets of solid paperboard are separated? How is the glue placed in the glue-line or on the flute tips? How well is the bond set as the board comes off the machine? How does the board sound and what is the crease like when the board is slowly bent? This observation method has great value as it tells immediately whether or not a board can be practically useful. It is a satisfactory method as long as numerical standards are not available or recognized. As satisfactory control tests do become available and recognized, the observation method becomes more and more a preliminary guide and final confidence is placed in the control room. For further advance in the overall quality the most accurate obtainable testing procedures should be used to study the quality of the board as the adhesive or operating technique is changed. The better the test the more likely the opportunity to make a poor board good and a good board better.

It is a well known fact that the adhesive used makes a definite contribution to such properties as the bending moment, column compression, the tensile and shear strength, the ring compression and flat compression, the wet strength, the puncture resistance, the tear strength, the folding endurance and perhaps other properties for which tests have been devised. Fairly well recognized standard methods have been provided for most of these properties and in some cases tentative standards of TAPPI and ASTM have been published.

The strength of the joint is perhaps the most direct measure and the most obvious measure of quality both of the board and of the glue-line itself but it is one of the least well developed methods. Perhaps the first of the observation tests was to pull the board apart. If the applied force finally caused a rupture of the paper instead of the adhesive joint then the strength of the paper instead of the stronger adhesive would actually be tested and results were as good as one could hope. In any case, the weakened part of the glue-line whether of the adhesive itself or of the surrounding paper affected by the adhesive and its penetration were judged. Gradually other tests were developed from which data could be recorded and thus compared with other later data.

Previous Methods

An early method was that of Abrams *(1)* who (in 1930) used a ply bond type straight or pure tensile pull for his measurements. While this method probably gives the most nearly true tensile strength it does require glueing the outer liners to the anvil with a bond which will not separate as readily as the bond to be tested. A method which has been used by Quinn *(2)* has been to measure the force required to peel a liner away from the corrugated medium. A sample was cut to the required size with the flute lines perpendicular to the length of the piece. The liner was then slit carefully across the middle and the slit ends attached to the jaws of a tensile machine. The liner was thus peeled away from the flute tips. This test does not allow a measurement of more than one line at one time and also involves considerable shear moment. The Beach *(3)* adhesion test also measures a pull with a high shearing moment but diagonally across the flutes. It apparently did not give results which correlated with results from a pull normal to the face of the board. The Elmendorf tear tester has also been used for both corrugated board and solid fiber bonds.

The tests which interested the authors most because they tended to measure more of a pure tensile stress and also were more rapidly accomplished than the ply bond type were those involving the use of small rods passed through the flute openings and so manipulated that alternate rods were pulled in opposite directions. Depending on whether the rods are passed through consecutive or alternate flutes, either the weaker or a chosen liner can be forcibly separated from the corrugated medium *(4, 5)*. The results of the various tests may be reported as pounds of force or force per unit of spread for the rupture of a stated size of board specimen or preferably as force required to separate one foot of glue-line.

Perhaps the most important reason for the lack of development of a more generally recognized measurement of the bond strength of corrugated board is that a fairly large variation in the strength of supposedly identical specimens has been found. This has been in the neighborhood of 10 to 20% and has cast doubts on the value of the tests.

It was felt that if a carefully made measuring in-

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[3] Assistant Patent Manager, Philadelphia Quartz Co., Philadelphia, Pa.

strument was used and if the methods of recording the results and operating the machines could be as automatic as possible these variations might be reduced to a small factor. In any case such an approach should indicate more clearly the reasons for such differences.

Apparatus

The Thwing - Albert electro - hydraulic tensile strength tester (Fig. 1) Model 35-4 calibrated for three ranges 0 to 50, 0 to 250, and 0 to 500 pounds was used in this work. It meets the ASTM and TAPPI standards for equipment to measure the tensile strength of fibrous materials. It also is equipped with a graphic recorder to record the elongation or compression in the sample during tests. This instrument has attachments for measuring tensile tear and shear strength and ply bond or transverse, tensile strength. Flat compression, column compression, strength compression, sheet rigidity and stiffness, and puncture, resistance may also be measured. The flute bond test equipment was developed on the basis of testing a selected glue-line of as long a total length as possible. This, of course, means testing a number of short glue-lines simultaneously and the size of the specimen is controlled both by machine dimensions and by the strength of the pins inserted through the flute opening. The strength of a pin is, of course, determined in part by the diameter which can pass through the flute opening without disturbing the bond.

As a first attempt, a comb arrangement was made which would allow the pins to be set in place with one motion. However, it was found that a slight movement of the pins was necessary in order to meet the variation in the distance between flute tips caused by variations in wear of the corrugating rolls. The apparatus finally devised is shown in Figs. 2 and 3.

Long pins are engaged only by the upper jaw

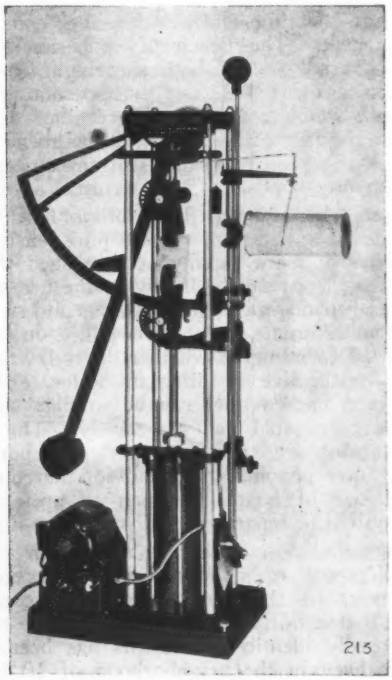

FIG. 1
Tensile Strength Tester

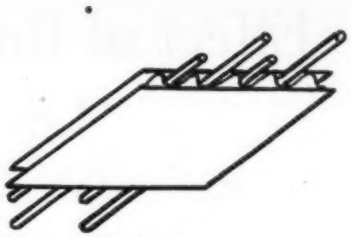

FIG. 2
Specimen with Pins

shown in Fig. 3 while the short pins are held by the lower jaw which also serves as a spacer and guide. When a measurement is made the jaws are separated steadily by forcibly lowering the short pins while the long pins resist the movement by applying increased stress as the pendulum is raised. Either an automatically recorded stress-strain curve showing the history of the force applied and the distortion it caused at each instant or a simple observation of the maximum stress can be obtained. The attachment is so made that the jaws can be rotated and one edge can be used for A flute and the other used for B flute.

Experimental Procedure

The required specimens are cut carefully, usually with a razor blade, into rectangular pieces having fourteen full flutes of the glue-line to be tested. The width of the rectangle controls the length of the flute and in the present attachment may be as much as 2 inches. This width is measured as carefully as possible and probably is within plus or minus 0.03 inches which should represent an error of not more than plus or minus 3% of the final bond value.

After conditioning the specimens to be tested, they are placed in the lower testing jaw with the row of fourteen glue-lines to be tested on the upper side of the corrugated medium. The seven shorter pins are then passed through alternate flute spaces above the corrugating medium. They extend part way through the rectangular holes in the walls of the lower jaw shown in Fig. 3. The lower jaw is then mechanically raised until it reaches the previously set automatic stop at the point at which the retangular holes of the lower jaw are even with the slots in the walls of the upper jaw. The six longer pins which reach from one slot of the upper jaw to the other are passed through the alternate remaining flute spaces above the corrugated medium. For dry bond testing the range of 0 to 250 pounds is used. The lower jaw is then driven down at a constant rate which may vary up to 12 inches per minute but which was set at 2 inches per minute. The separating stress steadily increases until it finally exceeds the combined strength of twelve of the fourteen upper glue-lines. At that moment of rupture, the outward movement of the pendulum ceases and it is held in place by multiple pawls. The maximum strength value may then be read and the pendulum released. This maximum stress may also be read from the recorded stress-strain curve and this recorded curve be kept for future reference. When 1.5 inch glue-lines are used the maximum value is divided by 1.5 feet to give a joint strength in pounds per foot of glue-line. A similar procedure may be used to determine the wet strength and plans have been made for the development of an attachment which will measure C flute samples.

Results

The stress-strain curve for the glue-line strength of corrugated board usually has the form shown in Fig. 4, so merely the rupturing force provides an adequate comparison or judgment of bond strength.

It is interesting to suggest the causes for the shape of the curve obtained. When a test is started the stress begins to increase rather rapidly with very small stretch of the specimen. This may have something to do with initial friction in the machine. At the first maximum the pins may be slipping into place so that no additional force is required while the jaws separate. During the next rise it is assumed that the bond is being forced until the flute shoulders suddenly give way to fit the round pins during the course of the second maximum. From then on the stress begins to build up until the bond breaks. At this point the safety catch holds the weighted arm in place so that the final maximum is constant and represents the force required to break the overall bond.

Table I and Fig. 5 show the results of a preliminary investigation of the effects of the width on the strength per foot of glue-line. In each case the single face bond was measured. It was obvious during the test that poorly made or mashed flutes, flooded or starved glue-lines, and deep finger lines made a substantial difference in the final results. By examining each sample after it was pulled apart only those samples with 100% contact of glue-line to both the liner and corrugating medium were used in calculating the average plotted in Fig. 5. It is probable that some machine-made specimens are more uniform than those studied in these tests but hand-made specimens prepared in the laboratory by a standard procedure show nearly as great variation. It is thought that the variation, where tear was nearly the same, is due more to the variation in the paper sheet itself than to the adhesive and adhesive placement. Of course, the fact that the samples were not kept under controlled conditions may have caused some variation but they were treated alike. The temperature during the test ranged from 20 to 22°C. and the relative humidity ranged from about 50 to 58%. In Table I the force reported is the total pull measured. "% T. L." represents the fraction of the glue-line which disturbed outer liner fiber and "% T. C." represents a similar value for the corrugated medium. These indicate poor flute formation. Where finger marks occurred they are also noted. Figure 5 shows the wide variation which poor glueing and crushed flutes cause.

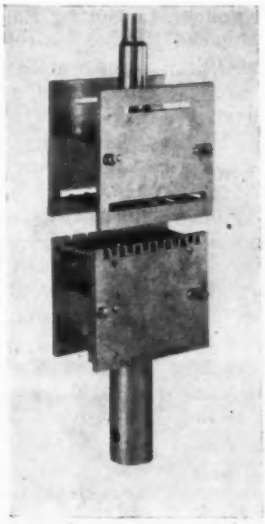

FIG. 3
Flute Bond Test Attachment

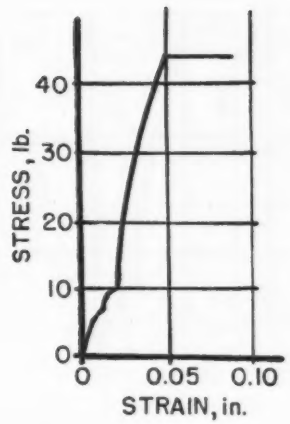

FIG. 4
Stress-Strain Curve for Corrugated Bond Carried to Failure

Five precautions should be taken to obtain a dependable strength value. The selection of a test specimen from a board should represent the glue-line itself, that is, the tested glue-lines must include representative samples of finger lines, bad adhesion and crushed flute. If the strength of the adhesive involved is a main interest however, the finger marks and defective sections of the glue-line must be avoided. Secondly, the width or flute length of all the specimens should be consistant. A change in the length of the glue-line under test not only affects the total rupturing strength as would be expected but could also change the rupturing strength per unit length as shown in Table I and in Fig. 5; a third precaution of course is to obtain identical conditioning adn testing methods as nearly as possible; fourth, a sufficient number of representative samples should be tested; fifth, all pins must be made of the same type and grade of steel and should be replaced before metal fatigue becomes a factor.

TABLE I.—VARIATION IN BOND STRENGTH AND THE EFFECT OF IMPERFECTIONS. MACHINE-MADE BOND-STRENGTHS AT DIFFERENT SAMPLE WIDTHS

Adhesive No. 1; "A" Flute Dry S.F. Bond; Hard Sized 16 pt. Kraft Liners. T.L. is Glue-Line Tear of Liner; T.C. is Glue-Line Tear of Medium.

No.	Pull, lb.	T.L. %	T.C. %	Remarks
2 inch wide (2 foot of glue-line)				
1	69	100	5	
2	55	100	0	
3	50	80	2	finger-mark
4	61	90	2	finger-mark
5	54	90	0	
6	69	100	2	
7	48	60	2	
8	76	100	2	
9	62	100	0	
10	59	100	0	
	65.0 = average with 100% T.L.			
1 inch wide (1 foot of glue-line)				
17	42	100	0	
18	48	100	2	
19	28	70	0	finger-mark
20	39	100	0	
21	26	60	0	finger-mark
22	45	100	2	
23	45	100	2	
24	34	100	0	
	42.2 = average with 100% T.L.			
1.5 inch wide (1.5 foot of glue-line)				
11	52	95	0	
12	23	40	0	
13	51	100	5	
14	48	70	2	
15	58	100	2	
16	67	100	5	
	58.7 = average with 100% T.L.			
0.5 inch wide (6 inch of glue-line)				
25	19	100	0	
26	17	pins placed improperly		
27	18	100	0	
28	21	100	0	
29	18	100	0	
30	21	100	0	
	19.4 = average with 100% T.L.			

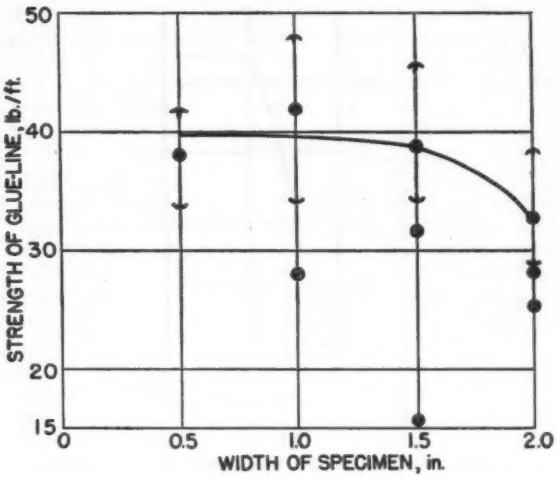

FIG. 5

Variation of Observed Flute Bond Strength of Machine-Made Board with Width of Specimens
●—Average Value at 100% T. L.
↕—Minimum and Maximum Values at 100% T.L.
(.)—Values with Finger-Marks Present
⊕—Average for Deformed Bonds, Less Than 100% T.L.

Conclusion

The method and equipment proposed for measuring the flute bond strength of corrugated board needs to be tested much more thoroughly before any recommendation for standardization can be suggested. The equipment is easy to use and provides automatic records or indicated readings as desired. There is very little chance for error by the operator if standard conditioning and a standardized technique is used for samples.

The data it can provide need to be tested for correlation with other data and with box performance before the question of the relative importance of the tensile bond strength and the column compression or other tests can be decided.

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Correction in the Business Address of James E. Fenn

In our June 5th issue we inadvertently printed the incorrect address in our article about Mr. Fenn's new consulting laboratory. This should have read: 629 West 50th Street, New York 19, N. Y., telephone COlumbus 5-2897.

With his background of more than 20 years' experience in the paper-converting and related industries, Mr. Fenn is well equipped to handle inquiries and problems relating to coating and laminating of all types of papers, fabrics, films and foils. In the near future Mr. Fenn expects to install complete paper testing equipment which will enable him to help his clients with the many problems arising in conjunction with the different uses of paper.

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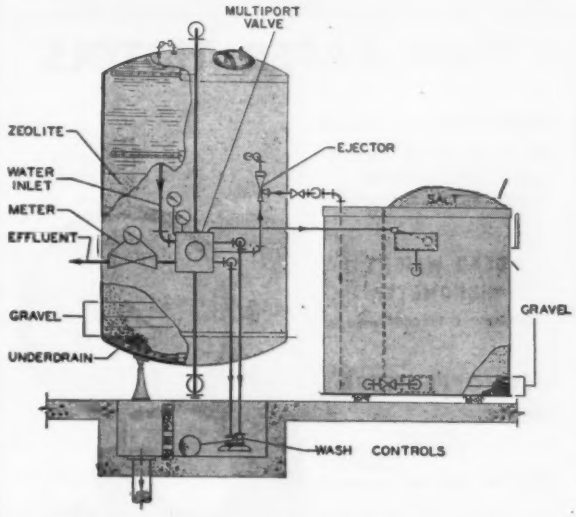

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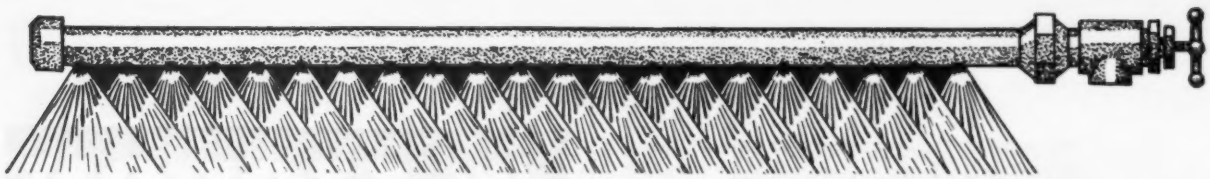

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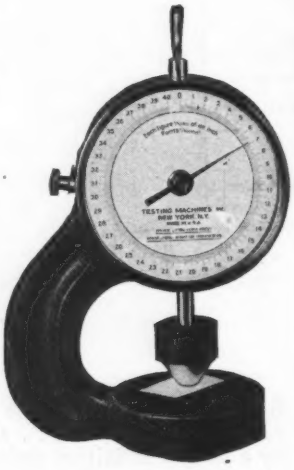

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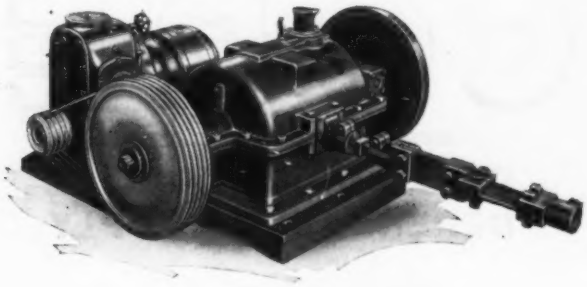

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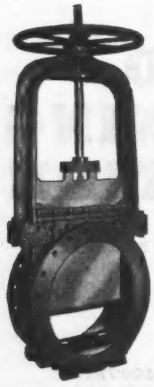

RECORD PAPER & PULP STOCK VALVES "BONNETLESS SELF CLEARING" - - - "RESIDUE POCKETLESS TYPE"

METALS — I.B.B.M., all iron, bronze or stainless steels, body parts plain or rubber lined.

The photo of 24" Fig. 241 I. B. B. M. valve while illustrating the gate bottom wedge system for forced gate seating and "GUILLOTINE" edge for shearing fibre at seat also shows the packing box and yoke as separate units. Both adjustable.

- The "FAST THREADED" screw stem and ball bearing speeds valve operation.
- The packing box is extra deep, is adjustable and provided with specialized lubricated packings and special type gland and compression bolts.
- The yoke mountings are such that yokes for various methods of gate operation are interchangeable.
- Replaceable gate edge shoes are used in valves 10" and larger. These shoes are of special value when valves are installed stem and pipe horizontal.

"RECORD PRODUCTS EXTENSIVELY USED IN DEFENSE PROJECTS."

RECORD FOUNDRY & MACHINE COMPANY
LIVERMORE FALLS, MAINE, U. S. A.

SUNOLITH
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R. G. GRADE
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TITANIUM DIOXIDE

★

Proved results—for surface coating or beater addition

The recognized standard of Quality Pigments for The Paper Industry

THE CHEMICAL & PIGMENT COMPANY

Division of
The Glidden Company
BALTIMORE, MD. COLLINSVILLE, ILL.
OAKLAND, CALIF.

CLEARING HOUSE

HELP WANTED—5c a word. Double rate for heavy face type. Minimum charge $1.25.
SITUATIONS WANTED—5c a word, double rate for heavy face type. Minimum charge $1.25. If repeated ½ rate will be charged for each consecutive repetition.

FOR SALE—5c a word. Double rate for heavy face type. Minimum charge $1.25.
WANTED—5c a word. Double rate for heavy face type. Minimum charge $1.25.
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Classified advertising space may also be purchased at $3.00 per single column inch.
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Address replies to advertisements appearing under Box numbers in care of PAPER TRADE JOURNAL, 15 West 47th Street, New York 19, N. Y.

HELP WANTED

Charles P. Raymond Service, Inc.
294 Washington St., Boston, Mass.

Specializing in Paper Mill Personnel

Positions Now Open

Cost Accountant for supervisory position
Master Mechanics and Plant Engineers up to $10,000 year
Machine Tenders and Back Tenders
Winder Man
Chemists and Research men up to $7,000 year

We invite correspondence (strictly confidential) with paper and pulp mill executives seeking new positions and with employers seeking new personnel. J-24

GENERAL SUPERINTENDENT

Eastern Pulp and Paper Mill needs capable, executive type of General Superintendent With demonstrated ability to manage and supervise. Prefer experience in Groundwood Specialties or Book Papers. Excellent opportunity with a growing, progressive Company. In reply, please state complete details as to age, education, and experience. Address reply to Paper Trade Journal, Box 47-545. A-14

Experienced machine tender on flat & square paper bag machines. Must be quick, alert and willing to cooperate. State age and experience. All replies confidential. Metropolitan New York. Box No. 47-550 care Paper Trade Journal. J-24

WANTED MECHANICAL ENGINEER

Skilled and experienced in industrial power plant design and steam and power studies. Good position for right man. Give training, experience, and salary expected. Location Michigan. Reply to Box 47-238 care Paper Trade Journal. TF

WANTED—Lead Electrician (Working Foreman) in Southern pulp and paper mill. In first letter state age; education, experience and wages expected. Address Box 47-498 care Paper Trade Journal. J-24

MECHANICAL ENGINEERING GRADUATE for plant engineer in connection with mechanical, electrical and steam power equipment in two paper mills. Paper mill experience preferred but not essential. Write giving full details as to education, experience, salary, etc. to Box 47-518 care Paper Trade Journal. J-24

WANTED—Machinist for small mill near metropolitan area. Excellent opportunity for experienced, aggressive man to grow into bigger job. Highest wages paid. Address Box 47-548 care Paper Trade Journal. A-14

MASTER MECHANIC for roofing felt mill, operating two cylinder machines. Give personal data and experience. Address Box 47-541 care Paper Trade Journal. A-14

HELP WANTED

LOGGING ENGINEER

Capable of opening up for the production of large yearly quantities of water-driven pulpwood for boat shipment large limits in Eastern Canada.

Must be experienced in modern logging methods and equipment. State age, experience and salary expected. All replies confidential. Reply Box 47-532 care Paper Trade Journal. A-7

SALES MANAGER
With Mill Following
For Paper Stock
With
Leading Waste Paper Packer
Good Salary
Attractive Proposition
Box No. 47-368 care Paper Trade Journal TF

SALARIED POSITIONS

$2,500-$25,000. This thoroughly organized confidential service of 37 years' recognized standing and reputation carries on preliminary negotiations for supervisory, technical and executive positions of the calibre indicated. Retaining fee protected by refund provision. Identity covered and present position protected. Send only name and address for details.

R. W. BIXBY, INC.
117 Dun Bldg., Buffalo 2, N. Y.

WANTED—Tour Boss experienced in Folding Grades. Excellent opportunity for right man. Write giving complete details. Address Box 47-554 care Paper Trade Journal. A-14

WORKING MASTER MECHANIC — For a first class Paper Mill Mechanic, we have an up-to-date, clean mill needing experienced preventative maintenance. Good salary with sure chances of advancement. Address Box 47-544 care Paper Trade Journal. A14

SITUATIONS WANTED

PULP AND PAPER ENGINEER — Experienced in development and production work. Desires position requiring initiative with progressive company. Address Box 47-453 care Paper Trade Journal. TF

PLANT MANAGER—Thorough experience in converting paper and boards; wants change to position offering better opportunity. Excellent production and labor relations background. Address Box 47-42 care Paper Trade Journal. J31

POSITION AS CHEMIST in charge of chemical control in small pulp and paper mill by middle aged man. Address Box 47-533 care Paper Trade Journal. J 24

SITUATIONS WANTED

FACIAL, LIGHT-WEIGHT TISSUES, KRAFT AND WADDING

25 years experience in design and construction of high speed machines and general supervision of complete mill operation and production. Will build, install and get machine into production on contract, salary or fee basis. Previously constructed machines now in operation in leading Facial and Tissue Mills. A-1 references. Please reply to Box 47-520, Paper Trade Journal. J-24

YOUNG MAN—28, M. A. Organic Chemistry, two years industrial experience, one year with paper industry, seeks opportunity with paper or specialty manufacturers as Junior executive or technical sales assistant. Best references. Address Box 47-523 care Paper Trade Journal. J-31-NC

ENGINEER CONVERTING MACHINERY—Machine designer, operator, would like to become associated with paper converting machinery manufacturer as selling representative. Capable executive, with a background of many years designing and operating all types of bag and envelope machinery, printing machinery, slitting die cutting, etc. Could service machines, render technical aid, as well as sell. Address Box 47-527 care Paper Trade Journal. J-24

MANUFACTURING SUPERVISOR — All types printing and bag making. Cellophane, waxed paper specialties. Window bags, die cut cellophane bags, coffee bags, satchel bottom, etc. Familiar with all latest developments in aniline, gravure and heat dry oil inks, special adhesives, etc. Capable engineer, designer of many special types of converting machinery. Can make improvements to your equipment, increase your quality and production. Address Box 47-528 care Paper Trade Journal. A-7

SUCCESSFUL SALESMAN with wide experience in paper products desires connection with reputable wholesale firm or mill for Philadelphia and vicinity. I am a responsible individual having combination financial background and diversified business experience in sales and credit. Highest references. Address Box 47-553 care Paper Trade Journal. J-24

"33, partner of European paper mill, sound commercial training, English, French, German, some Italian. Wish to study up to date business methods. Propose to work several months in firms of the trade in USA, Canada and overseas. Who offers chance? Address Box 47-540, Paper Trade Journal. J-31

FOR SALE

FOR SALE

Two Machine Mill Site in State of Maine with 2000 water h.p.—two 300 h.p. boilers in boiler room. Buildings in excellent condition. No machines. ROSS PAPER MACHINERY CORP., 265 Passaic Street, Newark, N. J. J-24

FOR SALE—120" Ball Bearing Fourdrinier with 18" diameter suction couch. Address Box 47-538 care Paper Trade Journal. J-24

Precious Little Fibers

MICROSCOPIC VIEW OF PRECIOUS FIBERS

Did you ever stop to think just how precious those papermaking fibers really are?

Your livelihood depends on them. Your Company has millions of dollars invested in plant that depends on them.

The public can't do without them—after you've turned them into that universal commodity: paper.

Do you treat them with the care they warrant or do you cut them up, instead of brushing them out?

Do you abuse them by treating them harshly—believing, for instance, that you are saving power—but all the time, saving power at the expense of the fragile fibers on which so much depends?

Those precious little fibers deserve the best—*they should be Hydrafined.*

There is no universal solution to stock preparation problems—no universal system—no universal beater—no universal Hydrafiner—no universal jordan.

If you will draw on our forty years of experience with stock preparation problems, and systems, you will discover what to do, as well as what not to do, on the subject of Hydrafining.

No obligation implied when you tap that wealth of information. Address Shartle, or Dilts.

SHARTLE BROS. MACHINE CO.
MIDDLETOWN, OHIO

DILTS MACHINE WORKS, Fulton, New York
Divisions of The Black-Clawson Co., Hamilton, Ohio
Associate: Alexander Fleck Limited, Ottawa, Canada

FOR SALE

FOR SALE

62" Waldron Slitter & Rewinder with 26 Knives and Coating Station; 40" NEW Jacques Slitter & Rewinder; 42" & 48" Paper Power Cutters; 20" x 30" & 27" x 40" Thomson Die Cutters; Hayssen Heat Seal Wrappers; 33" x 46" Miehle Printers & Die Cutters; Write for listings of Paper Converting & Paper Box Machines in stock. Address Box 47-525 care Paper Trade Journal. A-7

FOR SALE—81" Dietz Toilet Tissue and Towel Converting Machine. Fully automatic. Priced reasonably for immediate sale. Address Box 47-517 care Paper Trade Journal. J-31

FOR SALE

PAPER MILL EQUIPMENT

110" Hamblet heavy duty Mill Type Sheeter.
64" Clark Sheeter.
63" Oswego Power Cutter.
35" Waldron Reel.
32" Hobbs & 34" Inman shear cut Slitters.
14 x 22 John Thomson.
36 x 48 Kidder one-color Rotary.
NEW 44" National Automatic Cutters—ready for immediate delivery; Also 26½" Lever Cutters, one month delivery.
NEW Baling Presses—both hand and power.

THOMAS W. HALL COMPANY, Inc.
120 West 42nd St., New York 18
TF

FOR SALE—1 Hamilton-Corliss Variable Speed-Twin Engine, size of cylinders 12" x 24". Also Triple-Deck Frames for ninety 36" dryers, any width. The Chesapeake Paperboard Co., Baltimore 30, Md. TF

FOR SALE

1—DeLaval Steam Turbine—60 to 75 H.P., 125 to 250 lbs. Steam Pressure, 5 to 55 lb. back pressure; ideal where processing steam is required.
1—Deane Triplex Pump—size 5¾ x 8 with 15 H.P. motor.
Address Box 47-547 care Paper Trade Journal. J 24

FOR SALE

Hamblet Sheeter and Layboy, complete with eight roll back stand and slitting attachment. Max. roll size: 50" dia. x 72". Sheet length: 20" to 72". Located Columbus, Ohio. Also Max Kreseat Staining and Decorating Machine. Two color, 60" web, located Middletown, Ohio. Also 10", 3 color, Hy-Rote Rotogravure Press, complete.

POLLOCK PAPER & BOX COMPANY
Dallas, Texas J-24

FOR SALE—9 phosphor bronze cylinder molds, closed head one end, size 68" x 30", covered with 14 mesh and 60 mesh wires. Address Box 47-530 care Paper Trade Journal. A-7

FOR SALE

BARKER
1—5' Carthage Disc Barker.

BEATERS
1—3000 lb. Holyoke-Iron Tub Beater.
3—1200 lb. E. D. Jones (no tubs).
1—1000 lb. Dayton Beater (no tub).
1—500 lb. Beater—iron tub.

BLOWERS
2—Buffalo Forge Company—Size 7—Duplex Conoidal steel plate Blowers. Ball bearing.

BRUSH COATER
1—54" Waldron Brush Paper Coating Machine.

CALENDER STACKS
1—5 roll—72" face.
1—7-roll 36" Holyoke Machine (supercalender).

CHIPPER
1—50" Murray Chipper (8 knives).

CREPING MACHINE
1—86" Waldron Creping Machine, practically new.

CYLINDER MOULDS
1—30" diameter x 74" face.
2—36" diameter x 54" face.
1—30" diameter x 75" face.
1—36" diameter x 80" face.
3—30" diameter x 72" face.

DOCTORS
14—Dillon Doctors — complete with accessories—98" face.

DRIVES
2—30 h.p. Downingtown, enclosed drives, ratio 6 to 1—with clutch and cone pulley for paper machine.
1—Cleveland Worm Drive, Ratio 16 to 1.
2—Smith & Winchester mortise gear. Drives.
1—D. O. James 75 H.P. Speed Reducer with couplings and motor base. Ratio 2.16 to 1. 900 RPM.
1—#1 Reeves Drive.
1—#3 Reeves Drive.
1—#5 Reeves Drive.
4—Horton vari-speed Pulleys.
2—Foote—7½ h.p. Speed Reducer (Ratio 240 to 1).

DRIVES (Angle)
1—General Machine Company 16 : 1.
1—Philadelphia 50:1—1 h.p.—1200 r.p.m.
2—Philadelphia 21⅝:1—3 h.p.—1200 r.p.m.
1—Link Belt 25:1—r.p.m. input 1150—r.p.m. output 46, including 7½ h.p. G.E. totally enclosed motor.

V-BELT DRIVE
1—21¼" diameter x 7½" face, 5 groove.
1—16¼" diameter x 7½" face, 5 groove. (With clutch).

DRYER SECTIONS
8—Dryers 36 x 64 with frames, bearings, gears, felt roll, base plates, etc.

DRYERS
1—28" diameter x 76" face.
1—48" diameter x 94" face.
2—25" x 120" (Baby Dryers).
1—48" x 100".
2—24 x 72 (Copper face, textile type).
3—24" diameter x 50" face.

ERKENSATORS
1—I. W. E. Erkensators—bronze construction—complete with motors, starters and distributing box.

FLAT SCREENS
2—12 plate Flat Screens.
1—4 plate Flat Screen.
1—6 plate Flat Screen.

HYDRAFINER
1—Dilts Hydrafiner (1200 r.p.m.)

HYDRAULIC PRESS
1—350 ton Butterworth Hydraulic Pulp Press—platen 42 x 65"—8' daylight.

JORDANS
1—Noble & Wood, Pony Monarch, Belt Driven.
1—No. 9 Emerson Jordan—for direct connection to a motor.
1—Noble & Wood Monarch.

KNIFE GRINDER
1—96" Rogers Knife Grinder.

PULLEYS
Various cone and assorted pulleys.

PULP SCREEN
1—IMPCO centrifugal pulp screen design No. 3.

PULP STACKER
1—Link Belt Company Pulp Stacker, 30 ft. conveyor, 2½ ft. wide, self propelled, with motor.

PULPER
1—Jones Pulper.

PULVERIZER
1—Erie coal pulverizer.

PUMPS
1—Buffalo Pump—5500 g.p.m. (50' head).
4—Vertical Schutte & Koerting Acid Pumps (with motors).
2—Goulds—2 stage—420 g.p.m.—1010' head.
1—Gardner Denver 4 x 6—including 15 h.p. totally enclosed motors—700 g.p.m.—72' head (new equipment).
2—Weil Pump Co.—100 g.p.m.—100 P.S.I. including 15 h.p. motors (new equipment).
1—Bell & Gossett—600 g.p.m.—100' head—including 25 h.p. motor.
1—Bell & Gossett—300 g.p.m.—120' head—including 15 h.p. motor.
1—Goulds Sump Pump—50 g.p.m.—20' head—including motor.
Various sizes of Centrifugal and Plunger Pumps. Write us regarding your particular requirements.

REELS
1—72" Downingtown Expansion Reel.
1—2 Bowl Reel—110" face.

ROLLS
500—Brass tube-steel tube—rubber covered iron rolls—various sizes

SCREEN PLATES
20 Plates cut .016.
10 Plates cut .008.
Also other sizes and cuts in stock.

SHEETERS
1—48" Langston heavy duty chopper (this is a combination machine, combining a slitter, scorer, sheeter and chopper.

SHREDDERS
1—Gilman Shredder.
1—Waterville Shredder.

SLITTERS AND WINDERS
1—Cameron Type 24-2A—42" face.
1—114" Kidder.
1—30" Langston.
1 36" Beck Razor Blade type Slitter & Winder.
2—H. P. Ruf Slitters and Winders.

STACKERS
1—Economy Engineering 2000# capacity—with motor.
1—Economy Engineering 1000# capacity—hand operated.

STOCK PUMPS
1—10 x 12 open impeller. (All lead).
1—8 x 18 Shartle Duplex.
Numerous other Centrifugal Stock Pumps. Advise as to your requirements.

SUCTION COUCH ROLL
1—18" diameter x 100" drilled face.

SUCTION FELT ROLL
1—Nash 110" Suction Felt Roll.

TOILET EMBOSSER
1—84" Embossing Toilet Roll Winder.

VACUUM PUMPS
2—#1 Nash Hytor Vacuum Pumps.
1—No. 7 Sturtevant Vacuum Pump.
1—14 x 20 Connersville.
1—18 x 28 Sandusky.
1—Sandusky 8 x 10.

VATS
6—Rice, Barton & Fales Iron End Vats, for 36 x 100" cylinder molds.

WET MACHINES
1—74" Moore & White.

YANKEE DRYERS
1—8' diameter x 120" face.
1—8' x 175" face.

We are always in the market to purchase your surplus or idle machinery. What have you to offer?
Wanted Cylinder and Fourdrinier Machines (complete mills).

Paddy Ross, Pres. **J. J. ROSS COMPANY** Ben Kurs, Treas.

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ROSS PAPER MACHINERY CORP.

265 PASSAIC STREET
NEWARK 4, N. J.

CONVERTING
PAPER MAKING EQUIPMENT

NEW, USED, REBUILT
PAPER AND PULP MACHINERY

JACK ROSS, Pres.

Sustaining Member

BEATERS
1—6000#-roll 36" face x 36" dia.
2—750 lb. Horne Iron Tub. Roll 60"x40"
3—1200 lb. E. D. Jones Beater—no tubs
1—1200 lb. Noble and Wood—no tub Bears new Alfinos for roll
3—E. D. Jones 2000# Iron tub—with Warren hydraulic lighter hoists. Roll 67" dia. x 60" face.
1—Breaker Beater—Iron Tub—35 ton capacity.

BEATER ROLLS
1—48" face x 48" diameter.

BLOWERS
2—Wilbraham-Green Rotary Positive Blowers and Gas Exhauster.
1—Sturtevant #8.
1—American Sirocc Size 4.
2—American Blowers #300.
1—American Blower #700.
1—American Blower #750.
1—Buffalo Size 40.
4—Buffalo Forge Co. #24 Cast Iron Blowers.
2—Buffalo Size 4.

CALENDER ROLLS
10 rolls various sizes

CALENDER STACKS
1—2 roll Holyoke 36" face.
1—Pusey & Jones 9 roll 64" face
1—Beloit 6 roll—110" face.

CONTINUOUS TRAVEL CUT-OFF
1—Langston 74" r.h. Type S. Continuous Travel Cutoff, with change gear box.

CONVERTING EQUIPMENT
2—Sanitary Napkin Machines. With motors and starters.
1—Riley Double Head Stitcher
3—Cameron Type 72" Towel Converting Machines.
1—45" Hudson Sharp Facial Tissue converter—with embossing attachment.

COUCH ROLLS
1—19½" diameter x 82" face—brass covered.
2—20" diameter x 82" face—brass covered.

CYLINDER MOLDS
1—72" face x 90" diameter
1—78" face x 100" diameter
2—84" face x 36" diameter.

DRIVES
1—24 Reeves.

DRYERS
2—24" Dia x 48" Face
1—24" diameter x 72" face
5—74" face x 28" diameter with gears and bearings
14—New 120" face & 48" diameter dryers.
1—64" Face x 50" diameter.

FLAT SCREENS
1—Harmon 16 plate.
1—12 plate Bagley & Sewall Flat Screens with screens and spare set of plates
6—8 plate Sandy Hill Flat Screens

FORK TRUCK
1—MobileLift—Gasoline—Lift 72".

FOURDRINIER SHAKES
1—Beloit Fourdrinier Shakes

HAMMERMILLS
1—American Hammermill—87" anti friction bearing equipped.

HEAD BOXES
1—118" with Jones Slice.
1—101" Bronze.

HOG
1—Mitts & Merrill Hog, 12" x 12".
1—F'Hubbard 7 x 8. Ball bearing.
1—Mitts & Merrill.

JORDANS
1—Noble & Wood Pony Monarch for belt drive.
1—Noble & Wood Pony Monarch—pulley drive.
2—#2 Black-Clawson. For motor drive.
1—E. D. Jones Imperial—direct connected to 550 volt motor—with starter.
1—Dilion—25 ton capacity.
1—Dilion #2—50 ton capacity.
6—E. D. Jones Standard Ball Bearing direct connected—75 H.P. 440/3/60 motor.

KNOTTERS
1—Wells Knotter.
2—Trimbey Knotters

MOTORS
1—G.E. 50 h.p. 498 r.p.m.—3 phase—60 cycle—440 volts—with starter.
1—200 h.p. 285 r.p.m.—440 volts—3 phase—60 cycle.

PULLEYS
10—Cone Split and Solid Cast Iron Pulleys Various Sizes.

PULP EQUIPMENT
1—72" Sumner Disc Barker with motor.
2—IMPCO Pulp Screens
2—Trimbey Knotters
2—Asmew Pulp Screens
1—Jigger—1 deck—vibrating screen.
1—Zaremba Triple Effect Evaporator — 84" diameter.
1—Mitts & Merrill #17 Pulpwood Chipper.

PULPERS
1—Voith Pulper 20 tons cap
1—Bird Pulper.

PUMPS
3—Worthington Pumps 10,000 g.p.m.—25' head. Requires 75 h.p. at 550 r.p.m
6—Warren Vertical Pumps. 6" by 3", 135 g.p.m. 80' head. Direct Connected 6 h.p. motor 440 volts.
2—Worthington 3" 2 stage, 200 g.p.m. 224' head Bronze Ball Bearings.
1—American Marsh 200 g.p.m.—50' head—3" suction 2½" discharge.
3—De Laval Verticals—540 g.p.m. 1740 r.p.m. —30' head 8" x 3". Direct connected to 7½ h.p. 440 volts.
1—4" Pusey & Jones Open Impeller Centrifugal Stock Pump—belt driven.
1—3" Lance Size Pumps—belt driven
1—Worthington Monoblock—250 g.p.m.—130' head —direct connected to 15 h.p.—3500 r.p.m.—220/440 volts, totally enclosed, ball bearing motor.
1—Terry Marsh 750 g.p.m., 250' head. Requires 125 h.p motor
2—Ingersoll Rand all bronze 175 g.p.m.—40' head
1—Worthington 3"—280 g.p.m.—3550 r.p.m.—488' head
1—New Gouids Pump—75 g.p.m.—70' head—2 x 1½—for motor drive.
2—New Goulds Pumps—150 g.p.m.—90' head—3 x 2—for motor drive.
1—New Gouids Pump—500 g.p.m.—60' head—6 x 4—for motor drive.
1—Ingersoll Rand 500 g.p.m.—90' head—direct connected 15 h.p. 220-440 volt—3 phase—60 cycle totally enclosed motor.
1—Ingersoll Rand—50 g.p.m.—210' head—direct connected 7½ h.p.—220-440 volt—3 phase—60 cycle totally enclosed motor.
1—Roper Heavy Liquid 85 g.p.m.—54 lb. head.
1—Hayton 600 to 900 g.p.m.—25' to 20' head —ball bearing V-belt drive.
3—Lawrence 50 g.p.m.—60' head with extended base—ball bearing.
1—Quimby Sump Pump—100 g.p.m.—20' head—84" drop with 3 h.p. 220-440 volt 3 phase 60 cycle motor.
1—LeCourtney 1500 g.p.m.—45' head—connected to 25 h.p. 440 volt motor.
63—New Gould Figure 3010 open impeller belt driven—1", 1½" and 2".

REAM SEALING MACHINES
2—Morrow Mfg. Co. ream sealing machines. New.

REDUCERS
1—Jones Worm MAAG Vertical Reducer. Ratio 248 to 1. Serial #205681.
2—De Laval Helical Reduction Units—65 h.p.—ratio 2.96—275 r.p.m.—ratio 2.24—616 r.p.m.

REFINERS
1—Weiner Refiner 24" with extended base for direct connection to motor, and a large lot of new spare parts.

ROLLS
15—Brass 240" face x 9¾" diameter. 12½" journals.
75—Steel—160" face x 7" diameter.
17—Brass—118" face x 9" diameter.
200 Assorted rolls.

ROTARY SCREENS
1—#1 Bird with steel vats, one new
3—Moore & White
5—Bird Rotary Screens. Cylinder 30" dia. x 98" face. Copper vats with washers.

RUBBER PRESS ROLLS
1—120" Face—19" Diameter.
1—119" face x 19½" diameter
1—100" face x 18" diameter.

REELS
1—192" Pusey & Jones Single Drum Reel.

SHEETERS
1—51" Hamblet Single Knife with 8 roll back stand and layboy. Single Pile.
1—90" Finlay Duplex 12 roll backstand with layboy. Two Pile.
1—136" Hamblet Duplex
1—104" Hamblet
1—50" Hamblet with 6 roll back stand and motor.
1—81" Hamblet Duplex with 8 roll backstand and layboy.

SHREDDERS
2—24" Sprout Waldron heavy duty shredders—anti friction bearing equipped.
1—Taylor Stiles Portable Pulp Shredder—on wheels.
1—Rythor and Pringle Shredder.
3—36" Mitts & Merrill with 125 h.p. motors and starters.

SLICES
1—E. D. Jones 117" Flexible Slice.

SLITTERS AND WINDERS
1—40" Waldron—2 drum.
1—42" Camachine #28—Model 2A.
1—120" Moore & White 4 drum slitter and rewinder—rebuilt.
1—196" Pusey & Jones Slitter and Rewinder with Unwind Stand.
1—Camachine 9—45"—ball bearing.

STONITE PRESS ROLL
1—Stowe Woodward 111" face x 22" diameter

STUFF PUMPS
1—Dillon 7½ x 12" duplex
1—Moore & White Duplex 8x12".
1—Shartle 8" single plunger.
1—3/2" x 3" Worthington Triplex.
1—Beloit Duplex—8 x 18".

SUCTION COUCH ROLL
1—Beloit 22" diameter suction couch roll—117" face with 10" suction opening.

SUPERCALENDER STACKS
1—7 roll Norwood—52" face. Complete with drive
1—72" 9 roll Norwood—complete with drive

THICKENER
1—Valley Iron—cylinder 90x48 with 18" diameter rubber couch.

TRIMMERS
1—38" Undercut Trimmer.
1—56" Undercut Trimmer.
1—44" Seybold Holyoke Trimmer.

TUBE WINDING MACHINES
9—120" Tube Winding Machines—4½" Mandrels —New.

TURBINES
1—Westinghouse 125 h.p. 125 steam pressure—15 back pressure. Complete. Used 1 year

VACUUM PUMPS
2—14" x 20" Connersville
1—Nash Hytor Size MD 671. Direct connected to 1½ h.p. 220/440 motor.

VOITH INLET
1—112" Voith High pressure stock inlet, equipped with distributor breaker roll.
1—124" Voith Inlet.

YANKEE DRYER
1—New Sandy Hill 8' diameter x 100" face.

FOR SALE

BEATERS
4—68 x 60 Holyoke iron tub
3—72 x 44 Noble & Wood, no tub
2—52 x 42 Downingtown, iron tub

CALENDERS (SUPER)
1—66" nine roll Holyoke, anti friction
1—55" nine roll Holyoke anti friction
1—86" nine roll Holyoke
1—52" seven roll Textile

CREPER
1—72" creping machine, five 42 x 78 dryers

CUTTERS
1—84" Clark with layboy
1—100" Dillon with layboy
1—72" Finley with layboy
1—50" Finley
1—50" Clark

DRIVES
1—Waterbury, size 10, type C
1—Waterbury, size 20, type C, rebuilt

DRYERS
1—36 x 154"
3—28 x 114"
4—36 x 108"
1—48 x 98"

ENGINES
2—Sturtevant V 57—10" x 9", 50 HP.

FOURDRINIER PARTS
1—110" Fourdrinier with three sets presses 109 x 29

GRINDER KNIFE
1—62" Seybold
1—45" Springfield

JORDAN
2—Union
2—Horne
1—Claflin No. 2
3—Brushes

HOT MELT SYSTEM
1—Wolverine

KETTLES & TANKS
2—300 gal. jacketed, 100 lb. pressure
1—75 gal. copper jacketed
3—
1—16 ft. dia. conical settling tank

PRESS PARTS
3—Sets 109" x 29" dia.
2—Sets 120" x 18"
2—Sets 150"

PULPER
1—No. 3 Lamaye
1—No. 1 Lamaye

PUMPS
1—10 x 12 Deane triplex rebuilt
1—4½ x 6 Goulds triplex, hydraulic No. 41944
1—7/8 x 6 Deane triplex hydraulic

PUMPS (VACUUM)
1—Chicago pneumatic

RIFFLER
1—13, 14 and 15 ft. new system

SCREENS
2—No. 5A Bird
1—No. 2 Bird
3—Moore & White No. 2
1—Jones Leithwaik
4—12 plate Parker flat
3—12 plate
1—6 plate Parker
1—3 plate Valley

MOTORS
1—two cylinder Lancaster
1—three cylinder APMEW, meiud 50 x 100

SLITTERS AND WINDERS
1—150" Moore & White four drum
1—114" Kidder two drum

FRANK H. DAVIS CO., 175 Richdale Ave., Cambridge, Massachusetts TF

Complete Envelope Plant equipment, including nine Smythe Envelope Machines, four Harris Printing Presses, Power Paper Cutters, etc. Complete details upon request.

1—52"; 1—60"; 1—64" Waldron Brush Coaters. Festoon equipment. New J. O. Ross Drying Oven. 5 Buffalo Blowers. New winding reel. Motor equipments.

1—Sheridan Die Press 27x44"—rebuilt.

Power Paper Cutter: 1—44" 20th Century Seybold; 1—34" late Oswego. 1—54" Seybold Holyoke Mill Type.

6—Brownell Twisters, 84 Spindle Type.

1—Potdevin and 1 Lockport flat and square bag machines, complete with motor equipments, making bags from ¼ to 35 lbs.

1—64" complete creping machine.

2—#2 Lanoye Pulpers.

1—55" wide Hamblet Vickery Layboy.

1—60" Hammersley Score Cut Slitter & Rewinder.

1—Rotary Embossing Machine, 41" wide with motor.

1—Laminating machine 96" wide. Will laminate sheets any length up to 150" by 1" variations. Suitable for laminating paper or board.

1—26" Waldron 8 Color Wall Paper Printing Press, with Jolly static eliminator, 50 ft. turn around dryer, blower and AC motor equipment.

1—74" Black-Clawson Single Rotary Sheet Cutter.

1—Morrow Wrapping and Sealing Machine. Complete with motor and controls. Capacity 450 packages per hour.

1—94" Moore & White Duplex Rotary Sheeter.

1—Paper Converting Machine Company's Towel Interfolder.

1—Farrel-Birmingham 30x160" Roll Grinder, 20' bed.

1—68" three ply Laminator complete with dryers and rewinder. Excellent condition.

1—146" righ-hand Moore & White four drum rewinder.

1—9"x12" Brownell Variable speed engine.

1—Link Belt Co.'s pulp stacker, 30' conveyor 2½' wide, self-propelled with motor.

1—52" nine roll stack of super calenders.

GIBBS-BROWER COMPANY, INC.
21 East 40th St., New York 16, N. Y.
TF

FOR SALE

1 Noble and Wood Mammoth Jr. Jordan, arranged for direct connection to motor, less motor, capacity 1 ton per hr.
1 Westinghouse geared speed changer, ratio 3 to 1, 175 H.P. Type SVR-13
1 Westinghouse geared speed changer, ratio 1 to 1, 175 H.P. Type SVR-13
1 4000# capacity motor driven freight elevator with automatic stop control—can be inspected in operation at our plant.
1 120 inch slitter & scorer (fully equipped) Knowlton 60 x 120
1 Hamlet sheet cutter 82 inch knife
1 Brown & Carver Paper Cutter, 57 inch knife (A-1 condition*)
1 Hobbs double scoring machine
1 Hobbs Fly machine
1 Hobbs Ender
1 Hobbs double corner cutter
1 Hobbs hand to ping machine
1 Potdevin hand label glueing machine
1 Knowlton #27 single corner stayer
1 Model F-23-T Elwell Parker Lift Truck, fork type complete. Extra, Battery Charger, and extra battery 15 cell 21 plate, type TLM Exide (New) 4000 capacity
1 6 plate packer Screen (Sandy Hill)
1 Carrick Combustion controls for two boilers to be sold as unit.
1 #4 Reeves Drive open
1 #5 Reeves Drive open
1 Shepard Elevator, Motor driven 1 H.P. 1 Ton capacity
1 Shepard Elevator, Hand operated 1800 lbs. capacity
1 Connersville Vacuum Pump—10 x 15.
1 Ton Elevator motor driven ½ H.P.
1 Deming 3½ x 4 triplex plunger pump
1 Lawrence 6 inch double suction water pump
10 100" phosphor bronze No. 2-A Bird Screens .022" slots never used after being recut once
12 6½ dia. x 92" face steel dryer felt rolls, 1 7/16" journals
1 750 GPM underwriter's fire pump, steam driven (Complete)
1 Wagner Motor, 1 phase, type 14TBA, 5 H.P., 60 cycle, 1750 R.P.M.
Numerous large dia. steel and cast iron pulleys
Numerous elbows and tees for 5, 6, 8, 10, 12" spiral rivetted pipe

A visit to the mill would prove profitable as we have many items for sale too numerous to mention. See J. R. Stephenson, Plant Engineer at our plant at Walloomsac, New York.

WALLOOMSAC PAPER MILLS, INC.
Mills: Walloomsac, New York
Main Office: 25 Vanderbilt Avenue
New York 17, N. Y.
TF

FOR SALE

3—Midwest iron tub high speed beater rolls 65 x 60

1/Fourdrinier and press part, 120"

1—Fourdrinier and press part, 119"

2—Fourdrinier and press parts, 76", with anti-friction bearings and Beloit suction press

1—Fourdrinier only, 112"

2—Black-Clawson #2 Jordans

1—Noble & Wood Monarch Jordan

4—Noble & Wood Mammoth Jordans

1—Weiner Refiner

1—56" Super Calender

1—8 x 18 Shartle triplex stuff pump

1—8 x 16 Bagley & Sewall triplex stuff pump

1—Seybold knife grinder

SHARTLE BROS. MACHINE CO.
MIDDLETOWN, OHIO J-31

FOR SALE

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SLITTERS; REWINDERS; PAPER CUTTERS; PRINTERS; DIE CUTTERS; GLUERS; COATERS; SCORERS; CREASERS; CELLO. WRAPPERS;—ALL ARE WELL KNOWN AND STANDARD TYPES OF PAPER CONVERTING & PAPER BOX MACHINES. COMPLETE SET-UP BOX PLANTS NOW FOR SALE. WRITE FOR FREE BULLETINS—GET ON OUR MONTHLY MAILING LIST.

SOUTH WABASH ENGINEERING CO., INC.
2937 South Wabash Avenue
Chicago 16, Illinois
Telephone Victory 7169
J-31

FALK GEAR REDUCER

Model 461, size 11DB1, ratio 6.391—250 H.P. 1150 RPM. Red. to 180. Serial #1894927-1704298

SCOTT PAPER CO.
MR. E. BROOMALL
CHESTER, PA.
J-24

FOR SALE

1—Chandler Taylor 2 cylinder engine 11" x 11" steam 150 lb. r.p.m. 250.

1—Chandler Taylor 2 cylinder engine 12" x 12" steam 250 lb. r.p.m. 230.

1—Harrisburg Uniflow Engine, cylinder 20" dia. 20" stroke 120 lb. steam 240 h.p.

Address Box 47-313 care Paper Trade Journal. TF

FOR SALE

9 Paper Bag Machines. Used, Good Condition, Immediate Delivery.

Box 47-496 care
Paper Trade Journal
J-24

FOR SALE—Paper Converting Napkin Machine. Good condition. Priced right for immediate sale. Address Box 47-507 care Paper Trade Journal. J-31

FOR SALE

FOR SALE
2 COLOR ROTO

38" wide by 25" circumference. Sheet Fed Rotogravure Press. Two separate colors but not superiated. Press run very little. Without automatic feeder or electrical equipment. Will convert into roll feed if desired.

PRECISE ENGINEERING COMPANY
400 W. Madison Chicago
TF

FOR SALE—4—Six roll backstands, capacity 48"diameter rolls—complete with shafts—new—never used. Address Box 47-509 care Paper Trade Journal. J-24

DOCTOR RODS—for carbon and wax paper machines. Precision wound and uncoilable. Blue print and price list on request. Address Box 47-483 care Paper Trade Journal. A-14

FOR SALE—1—Reeves Rotary Lime Kiln. Size 8' x 125'. Adress Box 47-510 care Paper Trade Journal. J-24

PAPER COATING MACHINERY — Waxing, Oiling, Gumming, Gluing, Carbon, Laboratory Coating and Treating Machines. High speed. New improvement. MAYER MACHINE COMPANY, Inc., 1155 Scottsville Road, Rochester, 11, N. Y. TF

FOR SALE—365—48" x 6" Dayton, corrugated babbitted type beater fly bars. Apply, The Flintkote Company, 4500 North Galvez Street, New Orleans, La., Attn. C. J. Perez. J-31

WANTED—Order for custom-built, new paper machine to trim up to 120 inches. Delivery can be made in six months, new and used material supplied for complete mill in less than nine months. Address Box 47-551 care Paper Trade Journal. A-7

WANTED

WANTED—One International or Staude Windown Patching Machine for cartons with window range 1¾ to 10" long and 1¾ to 15" wide. Address Box 47-552 care Paper Trade Journal. J-24

WANTED

WANTED

New or used rewinder or roll conditioner for rewinding sub-standard rolls. Maximum width 36". Address Box 47-543 care Paper Trade Journal. A-7

WANTED

New or used Mayer coating machine 65" or wider. Address Box 47-542 care Paper Trade Journal. A-7

WANTED

Slitter and Rewinder
60" or over
(Cameron Preferred)
Box 47-549 care Paper Trade Journal
J-24

WANTED TO BUY

60" Laminator. Must be in good condition. Submit full particulars and photograph or descriptive matter in letter addressed to Box No. 47-536 care Paper Trade Journal. J-31

WANTED—Two 4-H Vortraps. Address Box 47-524 care Paper Trade Journal. A-7

MACHINERY WANTED—1—60 h.p. Splash proof Motor, 500 RPM, 440 volt, 3 phase, 60 cycle. 1—Automatic Magnetized Reduced Voltage Starter for the above motor. Write Sangamon Paper Mills, Inc., 137 West Pershing Road, Chicago, 9, Ill. A-14

WANTED

WANTED—Brightwood Box Machine. Address Box 47-71 care Paper Trade Journal. TF

PAPER MANUFACTURER desires to purchase or invest in converting business of standard paper products. Address Box 46-708 care Paper Trade Journal. TF

WANTED — DISCARDED PAPER MILL FELTS. HIGHEST PRICES paid for all kinds of discarded paper mill felts. LARGE or SMALL QUANTITIES accepted. Prices quoted immediately on receipt of samples. ADDRESS GLASER AND YOFFE, INC., 80 NORTH MAIN ST., NATICK, MASS. TF

WANTED—MILL CONNECTIONS for book papers, kraft, board, etc., to sell in eastern territory, preferably Philadelphia and vicinity. 17 years experience in the paper industry. Address Box 47-499 care Paper Trade Journal. A-7

WANTED — W & P Shredders, Evaporators, Generators and Boilers, Slitters, Cutters, Hydraulic Presses, Sheridan Presses, Dryers. Address Box 47-70 care Paper Trade Journal. TF

WANTED—Noble and Wood Monarch type D pulley driven Jordan with plug slotted for ¼" bars. Also, Moore & White 6 x 10 Duplex Stuff Pump. Address Box 47-506 care Paper Trade Journal. J-24

WANTED—One Pope Reel 80 to 100" face. Address Box 47-505 care Paper Trade Journal. J-24

WANTED—A Number 4 Lockport Flat & Square Bag Machine with delivery—any condition. Address Box 47-539 care Paper Trade Journal. J-31

BUSINESS OPPORTUNITY

ATTENTION MACHINERY MANUFACTURERS

Are you interested in a new, patentable production machine having a large potential market which will revolutionize the paper converting and packaging industry? Do you have complete engineering design, development and pilot model construction facilities to execute the ultimate manufacture and sale of a machine which will pay for itself in two years of operation?

Layout drawings and specifications with seventeen years of engineering design and production experience are available with complete assignment of all rights in exchange for opportunity to participate in this unusual venture on a contractual basis. Address Box 47-546 care Paper Trade Journal. J-24

MISCELLANEOUS

WILL EXCHANGE board for laminating mounting, lining and die-cutting machinery Address Box 46-707 care Paper Trade Journal. TF

KOHLER UNWIND AND REWIND REELS
with full speed roll change
INCREASE PRODUCTION DECREASE WASTE
Maintain a constant uniform quality of product.
THE KOHLER SYSTEM COMPANY
159 E. CHICAGO AVENUE CHICAGO 11, ILL.

CLASSIFIED ADS BRING RESULTS

Have you tried LOOMFIBRE
a
FINE WHITE FIBROUS INERT FILLER
for
PATENT COATED, WAXING, BLOTTING, PITCH CONTROL
W. H. Loomis Talc Corp. Gouverneur, N. Y.

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PRESENTED IN U. S. AND CANADA BY GEIGY COMPANY INC. 89-91 BARCLAY STREET, NEW YORK NEW YORK
BRANCHES BOSTON, PROVIDENCE, TORONTO, PHILADELPHIA, CHARLOTTE, CINCINNATI, PORTLAND, ORE.

MISCO
STAINLESS STEEL CASTINGS
for all equipment exposed to corrosion by sulphite acids or other corrosive agents
MICHIGAN STEEL CASTING CO., DETROIT 7, MICH.

JONES STOCK PREPARATION MACHINERY
Jones-Bertrams Beater
Standard Beating Engines
Jordans
Refiners
Banded and Bandless Jordan Plugs
Beater Rolls
Washing, Bleaching Engines
Stock Chests
Agitating Equipment
Paper Machine Screens
Pulpers, Disintegrators
Dusters of all Kinds
Beater and Jordan Fillings
Teale Flexible Slices
E. D. JONES & SONS COMPANY • PITTSFIELD, MASS.

FOR SALE | FOR SALE | FOR SALE

FOR SALE

BEATERS
4—60 x 60 Holyoke iron tub
3—72 x 44 Noble & Wood, no tub
2—82 x 42 Downingtown, iron tub

CALENDERS (SUPER)
1—66" nine roll Holyoke, anti friction
1—55" nine roll Holyoke anti friction
1—56" nine roll Holyoke
1—52" seven roll Textile

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1—45" Springfield

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2—Horne
1—Claflin No. 2
5—Brushes

HOT MELT SYSTEM
1—Wolverine

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2—300 gal. jacketed, 100 lb. pressure
1—75 gal. copper jacketed
3—
1—16 ft. dia. conical settling tank

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1—No. 1 Lamoye

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1—5½ x 6 Goulds triplex, hydraulic No. 41944
1—7/8 x 6 Deane triplex hydraulic

PUMPS (VACUUM)
1—Chicago pneumatic

RIFFLER
1—13, 14 and 15 ft. new system

SCREENS
2—No. 3A Bird
1—No. 2 Bird
2—Moore & White No. 2
1—Jones Leithwalk
4—12 plate Packer flat
2—12 plate
1—6 plate Packer
1—3 plate Valley

MOTORS
1—two cylinder Lancaster
1—three cylinder APMEW, melud 50 x 100

SLITTERS AND WINDERS
1—150" Moore & White four drum
1—114" Kidder two drum

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1—52" nine roll stack of super calenders.

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21 East 40th St., New York 16, N. Y. TF

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SCOTT PAPER CO.
MR. E. BROOMALL
CHESTER, PA.
J-24

FOR SALE

1 Noble and Wood Mammoth Jr. Jordan, arranged for direct connection to motor, less motor, capacity 1 ton per hr.
1 Westinghouse geared speed changer, ratio 3 to 1, 175 H.P. Type SVR-13
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1 120 inch slitter & scorer (fully equipped) Knowlton 60 x 120
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1 Hobbs Ender
1 Hobbs double corner cutter
1 Hobbs hand tp ping machine
1 Potdevin hand label glueing machine
1 Knowlton #7 single corner stayer
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1 6 plate packer Screen (Sandy Hill)
1 Carrick Combustion controls for two boilers to be sold as unit.
1 #4 Reeves Drive open
1 #5 Reeves Drive open
1 Shepard Elevator, Motor driven 1 H.P. 1 Ton capacity
1 Shepard Elevator, Hand operated 1800 lbs. capacity
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1 Ton Elevator motor driven ½ H.P.
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1 Lawrence 6 inch double suction water pump
10 100" phosphor bronze No. 2-A Bird Screens .022" slots never used after being recut once
12 6½ dia. x 92" face steel dryer felt rolls, 1 7/16" journals
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Numerous elbows and tees for 5, 6, 8, 10, 12" spiral rivetted pipe

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WALLOOMSAC PAPER MILLS, INC.
Mills: Walloomsac, New York
Main Office: 25 Vanderbilt Avenue
New York 17, N. Y.
TF

FOR SALE

1—Chandler Taylor 2 cylinder engine 11" x 11" steam 150 lb. r.p.m. 250.
1—Chandler Taylor 2 cylinder engine 12" x 12" steam 250 lb. r.p.m. 230.
1—Harrisburg Uniflow Engine, cylinder 20" dia. 20" stroke 120 lb. steam 240 h.p.
Address Box 47-313 care Paper Trade Journal. TF

FOR SALE

3—Midwest iron tub high speed beater rolls 65 x 60
1/Fourdrinier and press part, 120"
1—Fourdrinier and press part, 119"
2—Fourdrinier and press parts, 76", with anti-friction bearings and Beloit suction press
1—Fourdrinier only, 112"
2—Black-Clawson #2 Jordans
1—Noble & Wood Monarch Jordan
4—Noble & Wood Mammoth Jordans
1—Weiner Refiner
1—56" Super Calender
1—8 x 18 Shartle triplex stuff pump
1—8 x 16 Bagley & Sewall triplex stuff pump
1—Seybold knife grinder

SHARTLE BROS. MACHINE CO.
MIDDLETOWN, OHIO J-31

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SOUTH WABASH ENGINEERING CO., INC.
2937 South Wabash Avenue
Chicago 16, Illinois
Telephone Victory 7169
J-31

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Box 47-496 care
Paper Trade Journal
J-24

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FOR SALE

FOR SALE
2 COLOR ROTO
38" wide by 25" circumference. Sheet Fed Rotogravure Press. Two separate colors but not surprinted. Press run very little. Without automatic feeder or electrical equipment. Will convert into roll feed if desired.
PRECISE ENGINEERING COMPANY
400 W. Madison Chicago
TF

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WANTED

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New or used rewinder or roll conditioner for rewinding sub-standard rolls. Maximum width 36". Address Box 47-543 care Paper Trade Journal. A-7

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(Cameron Preferred)
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J-24

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60" Laminator. Must be in good condition. Submit full particulars and photograph or descriptive matter in letter addressed to Box No. 47-536 care Paper Trade Journal.
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WANTED—Two 4-H Vortraps. Address Box 47-524 care Paper Trade Journal. A-7

MACHINERY WANTED—1—60 h.p. Splash proof Motor, 500 RPM, 440 volt, 3 phase, 60 cycle. 1—Automatic Magnetized Reduced Voltage Starter for the above motor. Write Sangamon Paper Mills, Inc., 137 West Pershing Road, Chicago, 9, Ill. A-14

WANTED

WANTED—Brightwood Box Machine. Address Box 47-71 care Paper Trade Journal. TF

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WANTED — W & P Shredders, Evaporators, Generators and Boilers, Slitters, Cutters, Hydraulic Presses, Sheridan Presses, Dryers. Address Box 47-70 care Paper Trade Journal. TF

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ATTENTION MACHINERY MANUFACTURERS

Are you interested in a new, patentable production machine having a large potential market which will revolutionize the paper converting and packaging industry? Do you have complete engineering design, development and pilot model construction facilities to execute the ultimate manufacture and sale of a machine which will pay for itself in two years of operation?

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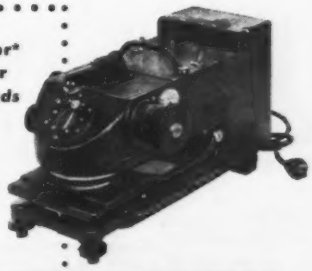

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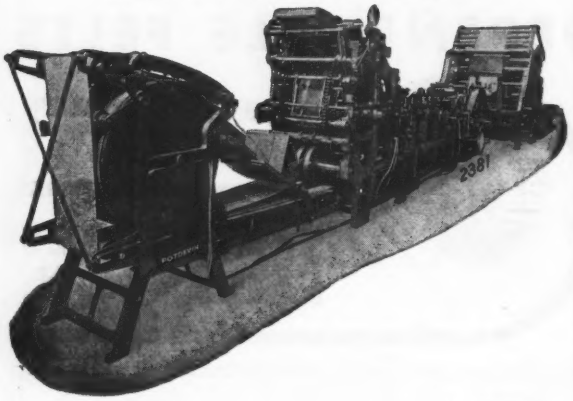

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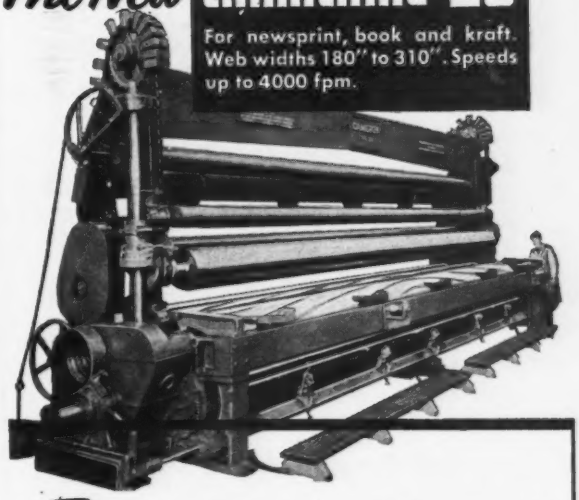

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Thwing-Albert Instrument Co.
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Wallace & Tiernan Instrument Co.
Williams Apparatus Co.
Westinghouse Electric Corporation

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Shartle Brothers Machine Co
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Valley Iron Works Co.

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Stickle Steam Specialties Co.
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General Electric Company
Ingersoll-Rand Co.
Reliance Electric & Engrg. Co.
Thwing-Albert Instrument Co.
Westinghouse Electric Corporation

MOULDS
Cheney Bigelow Wire Works

NOZZLES
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Shartle Brothers Machine Co.

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United States Rubber Co.

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Moore & White Co.
Pusey & Jones Corp.
J. J. Ross Company
Ross Paper Machy. Corp.
The Sandy Hill Iron & Brass Wks
Shartle Brothers Machine Co.
Smith & Winchester Mfg. Co.

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Valley Iron Works Co.

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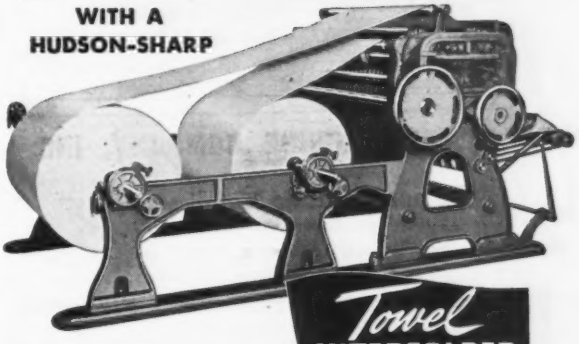

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Hudson Sharp Machine Company
The Kohler System Company
Moore & White Co.
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Rodney Hunt Machine Co.
The Sandy Hill Iron & Brass Wks
Shartle Brothers Machine Co.
The Smith & Winchester Mfg. Co

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Bauer Brothers Co.
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Leeds & Northrup Company
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Amer. Resinous Chemicals Corp
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Monsanto Chemical Co.
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Potdevin Machine Co.
South Wabash Engrg. Co.
H. G. Weber & Co., Inc.

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Shartle Brothers Machine Co.
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Weber, Herman G.

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Thwing-Albert Instrument Co.

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Hudson Sharp Machine Company
Langston Co., Samuel M.
Moore & White Co.
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Potdevin Machine Co.
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Ross Paper Machy. Co.
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Waldron Corp., John

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Borg-Warner Corp.
Lukens Steel Company
U. S. Steel Corp.
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